The Builder.

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New Premises, St. James's-street .....Mr. Leslie W. Green, A.R.I.B.A., Architect.
Design for Proposed Grammar School.....By Mr. C. F. A. Voysey.
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Report of the London Traffic Commission.

THE Report of the "Royal Commission on London Traffic" is a document that almost takes away one's breath — so immense are the interests involved in it, and so heroic are some of the measures suggested in it for the amelioration of the means of locomotion and transport in London. The subject, in fact, cannot be restricted to mere questions of accelerating traffic; it is inextricably interwoven with questions of street improvement, distribution of habitations, and hygiene; the last-named consideration, indeed, forcing itself upon us in one or two aspects which do not seem to have been quite obvious to the Commissioners.

The present first volume of the Report gives us only the outline or framework of the inquiry; long as it is, it is the Commissioners' Report only, their *résumé* of what was brought before them; for the evidence and much other valuable matter we have to wait for the appearance of the remaining volumes. But we may take it that the Report gives a perfectly fair summary of the case as it was brought before the Commission.

In their Preliminary observations the Commission wisely remark that "there can be no finality in the question of the best means of locomotion and transport for great cities"; and that in the case of London more especially the problem should be considered in the first instance on broad and general lines, particular branches of the problem being the subject of separate and distinct inquiries. This is a rational view to take: settle a broad principle first, then consider details in relation to it. And in London especially the question of locomotion assumes an unusually large aspect in view of the immense numbers of people who live on the outer radius of greater London, and have to get into and out from the centre of London every morning and evening; so that it is not only the question of the congestion of traffic in London, but of the rapid and healthy means of transit (we insert the second adjective advisedly) from the centre to the suburbs. And with this is connected, in the opinion of the Commission, the problem of the housing of the working classes, and of overcrowding, only to be met, says the Report, by enabling workmen to get in and out of London quickly and cheaply, and providing housing for them in outer zones.

We will return to that afterwards. The traffic of central London is, after all, the central portion of the subject. The gist of the problem is stated in Section 21 of the Report:—

"21. The chief difficulty that stands in the way of improving the means of locomotion in London is the narrowness of the streets and the fact that they were not originally laid out on any general plan. If the streets were of sufficient width, and had been laid out on a regular plan, the congestion of vehicular traffic would practically disappear; the long-distance traffic could be provided for by shallow underground railways at a cost which would not be prohibitive; and a complete system of surface tramways could be laid down which would carry the short-distance and miscellaneous passenger traffic of London cheaply and quickly."

This is only another of many testimonies to the serious mistake that has been continuously made in London, in carrying out street improvements without any reference to a comprehensive and pre-arranged plan. As is remarked in Section 25, even when in the last century the question of improving the streets of London was taken in hand, "the attention of the authorities was devoted to the removal of particular evils which could no longer be overlooked, rather than to the adoption of a comprehensive plan which would provide both for immediate and future wants." And even in these partial improvements the lesson as to the insufficient width of London streets had not been taken to heart, and it is only in its most recent proposals that the London County Council has had the boldness to contemplate anything wider than a 60-ft. street as a necessity. If the Report of the Commission does nothing else, it has at least the merit of having put forcibly the absolute necessity of carrying out improvements on a definite system instead of by piecemeal operations having no necessary connexion with one another.

In regard to what may be called the interior traffic of London, as distinguished from traffic between the centre and the suburbs, the difficulties are well summed up in the words of Section 65 of the Report:—

"65. At the root of the problem of London locomotion lies the fact that many of the streets of London are too narrow, not a surprising fact when it is remembered how London grew without method or control. It affects all kinds of locomotion in a greater or less degree. Vehicles move more slowly because they move in a too

confined space; so much so that we learn that the speed of vehicles, such as omnibuses and cabs, falls from about 8 miles an hour while the streets are fairly free to about 4½ miles an hour during the busy hours of the morning and afternoon. It is more difficult on the crowded surface to find room for tramways, and more difficult to find room for railways just beneath the surface in addition to the numerous lines of pipes which are there already. No argument is needed to show that immediate action is necessary to secure that all streets to be constructed hereafter shall be of sufficient width. That can be provided for by regulations. It is equally clear that, if it be practicable to pierce new arterial streets and to widen existing streets, every kind of locomotion will be facilitated; the question is how far it is practicable to do this and how fast it can be done."

In the course of the evidence brought before them the Commission received a great many suggestions for dealing with this difficulty. One of these was the construction of a circular road 75 miles in length, at a radius of 12 miles from St. Paul's; a futile suggestion, since people do not want to go round London; they want to go through it. Providing alternative streets parallel to crowded thoroughfares is a more reasonable and more possible suggestion; and we read that, besides these, a multitude of particular works in the way of widening have been pressed on the attention of the Commission. As to the details and the feasibility of these schemes we can form no opinion until we have the volume containing the evidence. But the Report implies that the Commission do not think it necessary to enter on these schemes, as they have a report from their Advisory Board of Engineers, which was compiled after full consideration of all these proposals, and embraces all that require particular notice. This Advisory Board consisted of Sir J. Wolfe Barry, Sir Benjamin Baker, and Mr. W. Barclay Parsons, the chief engineer to the New York Board of Rapid Transit Railway Commissioners, who, besides his New York experience, is said to be well acquainted with London. This Report will be contained in one of the future volumes, so that we must wait for that to know all the details of its suggestions, and the reasons for them. In the meantime we have in the present Report the outline of their recommendations, and these are sufficiently startling. The principal one is stated in Section 69:—

"69. By far the most important of their recommendations is a proposal for the construction of two Main Avenues through London, one from west to east to connect Bayswater-road with Whitechapel and passing through the City of London in the neighbourhood of London Wall, the other from north to south to connect Holloway with the Elephant and Castle, passing by a new bridge across the Thames near the western boundary of the City. The precise route which these avenues should follow is not definitely fixed, and would have to be laid out when the time for construction comes. Each avenue would be 140 ft. in width from house to house, with subways for water mains and so forth, and would afford space for cellarage under the footpaths. It is also intended that there should be four lines of tramway on the surface and four lines of railway a few feet below the surface, so as to allow express trains and local stopping trains to be run on different rails. Both tramway and railway are intended to be worked by electricity.

The design is that the tramways on each of these Main Avenues should be connected with the tramway systems at both ends, and also afford interchange of traffic with the various systems of tramways crossed on the route, so as to provide through communication with all parts of London and its suburbs."

That such a scheme would pretty nearly put an end to the difficulties of internal locomotion in London seems obvious; but can it be considered to be a scheme within the region of practical and practicable undertakings? The north and south road would not be so appalling a problem as the east and west one, and on the other hand it is not quite so important. But what is to be said as to the proposal to drive a street 140 ft. wide through the City? Independently of the enormous cost of such an undertaking, it would involve such an interference with existing property and vested interests that it may be questioned whether, in the eyes of owners of property in the City, it would not be regarded as a campaign against them rather than a public benefit. It is true that the Advisory Board do not contemplate that such a scheme could or should be carried out at one *coup;* they only recommend it as a scheme to be laid down on the map of London and gradually worked up to, piece by piece; and they suggest, as a method of meeting the expenditure, an extensive purchase of back lands near one of the selected routes at present values; a great land speculation, in fact, which it is suggested might prove remunerative in the end. Granting that it might, the question naturally occurs, how long would it take before such a scheme could be carried out and commence to repay itself? And is it certain that circumstances would not have changed so much before that time, that what was entered upon as a public necessity or convenience might in the end be regarded as a Utopian enterprise which had over-reached itself? Throughout the Report it is assumed that street traffic and crowding in London will go on increasing in the same ratio as heretofore; but is that certain? Is it not possible that a re-action against the tendency to crowd into London may set in? We are not sure that signs of such re-action are not already in the air; and if there is any chance of that, we can hardly expect those who discern it to give support to an immense scheme, in the face of a doubt whether in the end it is really a necessity. There is such a thing as looking too far ahead, and we are inclined to think that this scheme of the two avenues is open to that objection. It would have been a splendid thing to do in laying out a new city; whether it can be carried out in an old one is quite another matter.

The Advisory Engineers' Report, however, may do real good if it lead the authorities and the public to appreciate the importance of maintaining a much higher standard of width for new streets. They propose that new streets or widened streets should be laid out according to the following standards of width from house to house, according to their importance and probable amount of traffic:—

	Ft.
Main avenues	140
First-class arterial streets	100
Second-class streets	80
Third-class streets	60
Fourth-class streets	40 or 50

It is amusing to see that in this schedule the London County Council's width for best streets is reduced to the fourth in the descending scale. But on this point at least we are entirely with the "Advisory Engineers." Their widths are not one whit too great; and even if their grand scheme of the two avenues is too large to be carried out, the laying out of new or widened streets according to that schedule of width would work a considerable improvement in the course of time.

After the question of width of streets, and in some degree bound up with it, comes that of the nature and connexions of the means of locomotion. Leaving railways on one side for the moment, we find that the Commission lays great stress on the importance of the further development and connecting up of the tramway system. The Report draws attention to the curious fact that, while there is a considerable tramway system both east and west of London, there is no connexion between them, and that no one is able to go from east to west of London except by a change of conveyance. It is urged by the Advisory Engineers, among other things, that the Euston and Marylebone roads, though at some points too narrow, have at present a great capacity for widening owing to the existence along a great portion of them of fore-courts or gardens in front of the houses, part of which could be taken for widening the roadway without much expense; and that there would be no very great outlay necessary to render this line of road a wide east to west avenue, capable of carrying a line of tramcars. We think the forming of such an avenue, though quite practicable, would be both a longer and a more costly business than is calculated in the Report, but we quite agree that it is a thing to be kept in view, and that with this object the roads in question should be carefully watched so that any further advance of the building line over the existing open spaces should be prevented. The Advisory Engineers also draw attention to four other routes on which, with the same object, an eye of authority should be kept—viz.: the Bayswater-road; the Hammersmith-road; the Fulham-road; and the King's-road, Chelsea. These routes, they say, "are especially important, not only because of the great traffic which they already carry, and its probable increase, but because also they are routes specially suited for tramway service." By "specially suited" we suppose is meant in the sense of direction, for it can hardly be maintained that King's-road, Chelsea, as it exists is suitable for tramway service; it is in many parts much too narrow. But all these are no doubt good routes for tramway services taking people from the centre to the circumference of London.

This, however, leads us to the consideration, what is really the best means of traversing the crowded streets in the centre of London? The Report of the Commission, coupled with that of the Advisory Engineers, appears to lay great stress on the development of the tramcar system; but it must always be remembered that unless we can get wide streets for a tramway surface, the trams not only cannot get along at any great speed themselves, but are a serious obstruction to the other traffic. The immense tramcar system of Paris, with its arrangement of "correspondances" from one line to another, is no doubt a notable example of systematic working, but until one gets well outside the centre of Paris it is

exceedingly slow; in fact, in the crowded parts of Paris it is really about the slowest means of getting about that one can employ. In speaking of trams we almost pre-suppose them to be electric trams, for we do not think the horsed tramcar will last very much longer. Now, it is of no use expecting the best results from such a tram-service except in streets which are wide enough to afford a free circulation on each side of the tram-lines. All driving in a crowded street is a matter of give and take between the different vehicles, and to introduce into such a street a set of cars which claim to run a straight line through everything is at once to introduce inevitable blocking, delay, and confusion. And we put it, therefore, that the real function of electric tramcars is not to circulate in the crowded centre of London, but to take people from that centre to the suburbs. For that purpose of traffic it is invaluable, but it is quite out of place in a crowd. The Report speaks strongly of the disadvantage and inconvenience of having to change your vehicle at a certain point. That, however, would be inevitable in many cases, even if we had tramcars all over London, since it is impossible to arrange a service where the same line of tramcars would serve all directions. And we put it that the changing is a lesser public inconvenience than would be caused by choking up with a tram-route streets which are not wide enough for it. Keep the electric tram for radiating routes from the centre to the suburbs; and for the centre, wait a little and see what the motor-omnibus will effect. That vehicle is only feeling its way at present, but there can hardly be a doubt that it is destined to supplant the horsed omnibus before very long. The motor-omnibus has a greater capacity for speed (where there is opportunity for it); it seems to be even more manageable, in the matter of steering, than the horsed omnibus; and if it is kept within a certain maximum of length (and that ought to be officially seen to), it occupies less room than the ordinary omnibus and horses. That appears to us to be the best way of meeting the difficulty of wheeled locomotion in the centre of London, for which the tramcar is most certainly not suited. At the same time, we agree with the recommendation that the present power of "veto" of a tram-route by the authorities of a district should be cancelled. If it can be shown that such a route is a general public advantage, it is unreasonable that a special authority on a portion of the route should prevent it being carried out.

It is surprising to find that no serious and practical proposal is made in the Report towards getting over one of the greatest inconveniences in regard to wheeled locomotion in London—the obstruction of what ought to be fast traffic by slow-moving vehicles, such as carts and vans. The manner in which a single lumbering goods van is allowed at present, often, to set the pace for a whole street, and keep a line of cabs and carriages crawling in its rear, is perfectly absurd; and the Commissioners seem to have totally failed to grasp the real remedy for it. They suggest the futile idea that slow-moving traffic should be compelled to keep close to the kerb. How can it, when at every hundred yards or so a cart will find another cart or a carriage lawfully at a standstill at the kerb, and will therefore have to wheel out into the centre of the street, progressing by a kind of zig-zag course? The real and much simpler remedy is to limit slow-moving traffic to certain hours—say, from 3 a.m. to 3 p.m. The out-door life of the London social world—the world which uses carriages and cabs, does not begin to wake up till 3 p.m. at the earliest; it is at its fullest swing from 4 to 8, and again from, say, 10.30 p.m. to 1.0 a.m. Stop the slow traffic, in all principal thoroughfares, after 3 p.m., and one of the most serious obstructions to wheeled locomotion would be removed with no real hardship to any one. It is really surprising that this remedy, which has been publicly suggested over and over again, should apparently have entirely escaped the notice of the Commissioners.

Other very important suggestions of the Report, in regard to railways, street-crossings, new streets and bridges, etc., we must consider in another article.

NOTES.

Moving the Abbey Monuments. THE Office of Works have decided to ask Mr. Bodley to design the architectural portion of the monument to the Marquis of Salisbury which it is proposed to place in Westminster Abbey. So far good; we quite agree that Lord Salisbury merits a monument in the Abbey, and that Mr. Bodley is an architect especially well qualified to design the architectural portion of a monument to be placed in Westminster Abbey. But when we hear that the Cornewall monument now standing under the north arch of the Consistory Court is to be displaced in order to put the Salisbury monument where the Cornewall monument now stands, we must protest most strongly against such a course, which is breaking faith with the past generation. We may not think that Cornewall was worth so sumptuous a monument, but his contemporaries, who knew more about him than we do, thought so; and his monument having been erected, those who procured its erection had a right to expect that it should remain there permanently. How do we know that a future generation will appreciate more seriously the monument to Lord Salisbury, or that they will not in their turn take upon them to remove it, if once this example is set? Many of the monuments in the Abbey are no doubt very bad art, and unnecessarily large and rampant in style; but they are part of the history of England and of English taste, and to interfere with them is to interfere with both private and public history, and is setting a very bad example for future generations.

Rights over Natural Streams. THE case of Sharp and Others *v.* Wilson, Rotheray, & Co. is of interest, since cases relating to the rights of riparian owners to the waters of natural streams do not often come before the courts. The plaintiffs were the owners and occupiers of farm lands abutting upon a natural stream, the Wyke Beck, and they brought an action for an injunction and damages against the defendants, the occupiers of some dye works a little higher up the stream, for diverting the water and also for polluting it. The defendants set up a somewhat unusual plea that they were returning water from wells and a colliery sough in place of that they were taking. This defence was of no avail, since it is obvious that the plaintiff could not insist on such a supply, even if it was adequate, being continued, whereas he had proprietary rights in the water of the natural stream. The riparian owner has the right to the uninterrupted flow of the water, subject to the ordinary user by other riparian owners, and if an extraordinary user is made of the water it must be such as does not interfere with its quantity or quality to any sensible degree. This right to water is to some extent a proprietary right, and not merely an easement such as exists in the case of light and air, and thus the plaintiff is not compelled to prove such pollution as to cause a nuisance. The extent of the abstraction or pollution is a question of fact in each case, and in this case the court found that the flow of water was not only visibly and materially diminished, but that on occasions the flow of water was stopped altogether for some hours, besides being polluted from time to time, and the plaintiffs succeeded in their action.

Mississippi Flood Control. NOTWITHSTANDING the large sums of money which have been expended in the construction of dykes, or "levees," along the shores of the Mississippi, the problem of controlling the floods of that great river still awaits solution. Some engineers maintain that the levee system represents the correct treatment, while Professor Haupt and others believe that it is high time to stop the construction and raising of levees, as works of this kind afford merely temporary relief. A scheme by Mr. H. Van Meerten for improving the Mississippi is put forward in the current issue of the *Journal* of the Franklin Institute. The proposals made therein are that the river should have a continuous road-bed gradually increasing from source to mouth; that well-defined summer and winter beds should be formed, both unencumbered by levees, buildings, and other structures; that in places where the river is too wide the impounding of its road-bed should be effected by cribs at regular distances; and that the bed should be straightened by crib work or dredging, according to circumstances. The essential feature of this programme is the creation of a wide stretch of level land on either side of the summer channel. These lands would constitute the winter or flood bed, cultivable in summer, but not to be obstructed by any permanent buildings or anything that might retard the flow of water in winter. The system proposed is very simple, but would involve enormous outlay and probably at least a century for its complete realisation. In view of the unsatisfactory character of prevailing methods, we have no doubt the suggestion of Mr. Van Meerten will evoke some

interesting expressions of opinion from American engineers.

American Bridge Building.

ONE of the most interesting presidential addresses of recent years is that delivered by Mr. C. C. Schneider, at the annual convention of the American Society of Civil Engineers, on "The Evolution of the Practice of American Bridge Building." The development of bridge construction throughout the world has been largely dependent upon the introduction of new materials, and upon the requirements of newly-developed transport systems. So far as concerns masonry bridges, comparatively little progress has been made since the days of the Roman empire, and America has done practically nothing in this direction. Some of the first high timber trestle railway bridges were built in 1840, and this form of construction was the prototype of the American iron viaduct. After the railway system had taken root about 1850, a noteworthy epoch commenced in the history of American bridge-building. As Mr. Schneider states, the earlier metal bridges were of cast-iron, wrought-iron being used only in tension members. In 1859 came the first wrought-iron bridge, and in 1879 the first bridge built entirely in steel. It should be noted that the extensive use of the latter material did not commence until as late as 1890. The address presents an excellent review of the whole subject, and shows that, in spite of the wide differences formerly existing between European and American practice, the interchange of ideas between the Old and the New World has been so extensive that at the present time no vital difference is revealed by comparison of the designs by the best bridge engineers in Europe and America.

Structural Engineering.

WE have seldom read a more practical and refreshingly candid paper than that contributed by Mr. W. Doig Gibb to the *Proceedings* of the Institute of Gas Engineers. In the present note we only comment upon one or two of the many points discussed, hoping that our readers will obtain copies of the paper for perusal at leisure. In designing cast-iron columns it is not only important to provide for the utmost possible uniformity of thickness of the metal, but also to strengthen all overhanging capitals and projecting bases by interior ribs. The author shows that serious disaster may follow the absence of such reinforcement, as the replacement of direct compression by shearing stress will greatly reduce the resistance of the member. On the subject of "slovenly and incomplete specifications," the belief is expressed that nearly all the disputes occurring between engineers and contractors arise from careless specifications and drawings. Even if disputes are avoided, bad specifications lead to bad work. We quite agree that the better class of contractor wants neither one nor the other, and desires more than anything else accurate information so that he may prepare a fair estimate, and be in no manner of doubt as to the basis upon which the work is to be executed. Another thing is that the general clauses of specifications are frequently too one-sided. In such cases the personality of the engineer has a detrimental effect on prices, unless the contractor is willing to run considerable risk. There are points here that we fear apply also to many architects' specifications.

Municipal Electricity.

THE papers recently read at the meeting of the Municipal Electrical Association were nearly all too technical to be of general interest. The papers, however, by Mr. Hoadley on street lighting with Nernst lamps and by Mr. Sillar on prepayment meters and free wiring were exceptions. Mr. Hoadley has used 350 Nernst lamps for lighting the streets of Maidstone, and after three years' experience reports very favourably on them. The average life of the lamps works out to 676 hours, but he has noticed that the later lamps are much better than the earlier ones. He states that clear glass globes are used, as the ratepayers prefer a brilliant lamp to a good illumination. We have found in practical work that prismatic globes in outdoor use require constant cleaning, and the cost of this labour is an appreciable item in estimating the relative advantages of smooth and prismatic globes. Mr. Hoadley points out that any appreciable reduction of the cost of the electric light must come by using improved lamps, as there is little hope of reducing the costs of production much further. He briefly considers, therefore, the prospects of the mercury vapour, the osmium, and the tantalum lamps. Mr. Sillar, the Borough Electrical Engineer of Colchester, has found that it is profitable to install "free wiring" in workmen's houses and to provide them with prepayment meters. The meter is the most expensive item in the installation, but he rightly insists on the importance of it being thoroughly trustworthy. In Colchester, as in London, the great demand is for shilling-in-the-slot in preference to penny-in-the-slot meters. The meters are visited once a month in winter and every three months in summer. Ordinary consumers pay at the rate of 4½d. per unit, but the "free wiring" consumer pays 5½d. per unit, the difference of a penny per unit going towards the repayment of the cost of the installation.

Liabilities of Electric Lighting Undertakings.

THE case of Midwood & Co. Limited *v.* Mayor, etc., of Manchester is one of considerable importance to electric lighting companies and corporations. The plaintiffs sued the Corporation for damages caused by a fire which arose on the plaintiffs' premises by reason of the fusing of one of the defendants' mains, which occasioned the bitumen in which it was laid to volatilise and explode. The plaintiffs brought an action alleging that the system of electric lighting adopted by the defendants constituted a nuisance, since the system was all linked up, which made it difficult to discover a leak. The plaintiffs also said the defendants had been guilty of negligence. The defendants relied upon the special powers conferred upon them by Act of Parliament and Provisional Order, and upon the fact that their system was approved by the Board of Trade. The jury found for the plaintiffs, and the Court of Appeal have allowed the judgment that was given to stand, but with certain limitations. The ground of their judgment seems to be that a nuisance was established as far as the plaintiffs' premises were concerned, and that this being so the defendants were not protected, since Section 70 of the Provisional Order provided that "Nothing in this Order shall exonerate the undertakers from any indictment, action, or other proceeding for nuisance in the event of any nuisance being caused by them." The Court held that this section protected the public from a nuisance created in the working of the undertaking, and was not made subject to the other provisions, which conferred certain privileges on the defendants, but the Court reserved any opinion upon the larger question as to whether the particular system as adopted and worked by the defendants constituted a nuisance. The special provision quoted above rendered it unnecessary to consider the difficult question of law as to what degree of liability attaches to companies carrying on the undertaking in pursuance of statutory powers.

Electric Lamps and Fire Risks.

AT a time when colliery disasters are so unhappily prominent, attention may appropriately be called to the necessity for exercising great care in the use of incandescent electric lamps. It is common knowledge that the bulbs of such lamps become distinctly hot after the current has been switched on for a short time, but comparatively few are aware of the fact that the heat developed is sufficient to cause the ignition of inflammable substances in contact with the glass. A fire that took place at a colliery in the North of England some time ago, was finally traced to a 16-candle-power lamp, which had been placed upon a heap of coal dust in one of the workings, and only a few days back a serious explosion of fire-damp at a colliery in Belgium was caused by the bursting of a similar lamp. Mr. Henry Hall, one of H.M. Inspectors of Mines, has recently placed on record the result of some experiments bearing upon this subject. In one case he found that a 16-candle-power lamp, with a thin covering of coal dust, acquired the temperature of 370 deg. F. in two minutes, and exploded at the temperature of 450 deg. F. in four minutes; and a noteworthy fact revealed by the experiments is that, after a certain temperature has been reached, the process of spontaneous combustion is commenced, and temperature continues until the material bursts into flame, even in the absence of the original source of heat. The subject of this note possesses practical interest to architects, because inflammable materials in dwelling-houses and other buildings may conceivably be set on fire by contact with incandescent lamps for a sufficient period of time.

Colebrooke Cottage, Islington.

"I AM in Colebrook Cottage, Colebrook-row, Islington, close to the New River, end of Colebrook-terrace," writes Charles Lamb to Southey on November 21, 1823. A commemorative tablet will shortly be

affixed on that house—the first whole one of their own—in which Lamb and his sister, on quitting No. 20, Russell-street, Covent Garden, lived during a few years before they went to Chase Side, Enfield. The house, which contains six rooms, is often visited by Americans. It was named "Elia" until fifteen years ago, and having latterly been No. 19, Camden-terrace, is now renamed "Colebrooke Cottage" and renumbered 64, Duncan-terrace. In Lamb's time the house was detached, standing beyond the north end of the block on which is a tablet: "New-terrace, 1791." New-terrace with the three houses (built in 1882) next north were latterly known as Camden-terrace; they are now absorbed in Duncan-terrace. A comparison with a woodcut in the *Illustrated London News* of January 6, 1849, shows that in the present cottage the windows of the dining-room and the "lightsome drawing-room" (Lamb to Bernard Barton, September 2, 1823) are altered; the palings were put up, it is said, by Lamb, the willow-tree by the river-side is gone, the stone steps from which George Dyer walked into the New River are now turned from the left to the right, and the spacious garden "to delight the heart of old Alcinous" has been converted into a stable and van-yard. The New River flowing between Duncan-terrace and Colebrooke-row on the opposite (east) side is now covered over, and the southern portion of the enclosure is preserved as an open space and recreation ground by an arrangement made in 1893 between Lord Calthorpe and the Metropolitan Public Gardens Association. A tablet, inscribed "Colebrooke Row, 1768," on Colebrooke House, commemorates the building of Colebrooke-row, upon ground belonging to Sir George Colebrooke, lord of the Manor of Highbury and owner of a considerable part of the parish of Islington. The older houses in the row, since extended southwards for postal purposes, are distinguished by their carved wooden door-frames and other old-fashioned features. The R.C. church of St. John in Duncan-terrace, by J. J. Scoles, 1842-3, is illustrated in the *Builder* of April 1, 1843.

County Council School of Arts and Crafts.

THE Annual Exhibition of the London County Council Central School of Arts and Crafts Students' work was held last week at the school in Regent-street. It seems a pity that this exhibition, containing so much interesting and clever work by students, some of whom will doubtless be well known in the future, should only be open for such a short period. The principles of instruction are well illustrated in the section devoted to elementary work done in secondary schools, aided by the Council. Studies are based on plants, shells, and insects, objects of still life; there are pencil and water-colour copies of designs—birds, medals, and book illustrations; alphabets and decorated letters, and heraldry. Some of the modelling by members of the central school is excellent, notably a number of statuettes by Miss A. Wilkins, Miss Leon, F. Lessore, and others. That entitled "Beatrice" shows careful study of drapery. The copies of mediæval jewellery and tapestry from South Kensington should lead to excellent results, as also should the lithography. Coloured woodcuts are shown, and much else that is interesting in the by-ways of artwork. Stained glass, embroidery, modern jewellery, chasing, engraving, and die-sinking, to say nothing of metal work, architectural design, book illustration—all receive attention. The result of such work as this should have far-reaching effects, not only in improving industrial art, but also in giving art-workers fresh openings for gaining a livelihood.

"Michelangelo's Monsters."

IN Mr. Hewlett's last exceedingly picturesque story, "The Fool Errant," which is chiefly concerned with the doings of the more disorderly and Bohemian classes in the Italy of the early XVIIIth century, there is a reference to the Medici tombs of Michelangelo which is very piquant in its suggestion of the effect of such works on the uneducated mind. In danger from the authorities, the hero and his peasant mistress take refuge in the church of San Lorenzo, when she promises him that they may hide all night safely in the Sagrestia Nuova (the New Sacristy), "whither nobody goes but a grand-duke—and he only when he is dead"—if they could only find the passage leading to it. Accordingly, she cajoles a peasant boy half-asleep in the empty church—"Carino, tell me how to reach the Sagrestia, where the monsters lie sleeping and waking. . . . . We followed a flagged corridor for some distance and found ourselves in the Sagrestia Nuova with Michelangelo's monsters sprawling and brooding in the half light." The hero of the story, who was a gentleman fallen to low estate, had heard of Michelangelo's name; his peasant companion had not; the sublime figures were to her only "the monsters." It is a characteristic touch worth notice.

WORKING-CLASS DWELLINGS COMPETITION, PARIS.

THE jury for the competition organised by the Committee of the "Fondation Rothschild" for plans and designs of buildings to contain small sanitary and economical dwellings for the working classes, examined last week the twenty-five sets of drawings sent in for the final competition, and has given its decision. The drawings were again exhibited to the public on Monday and Tuesday in one of the large rooms of the Hôtel de Ville. The Committee had placed a sum of 50,000 francs at the disposal of the jury for awarding as premiums and indemnities, but, owing to the excellent results which the competition is considered to have given, and the really serious efforts made by all the competitors, the Committee decided to increase the amount to 80,000 francs. Premiums have been awarded to the authors of seven out of the twenty-five schemes submitted, and indemnities of the amount of 2,000 francs given to each of the other eighteen competitors.

The first premium of 10,000 francs was awarded to M. Adolphe Rey, "architecte diplômé du gouvernement," author of the designs marked "Pour le Peuple." M. Henry Provensal, "architecte diplômé," whose drawings were marked "Utile Dulci," carried off the second premium of 9,000 francs, and M. Wilfred Bertin took the third premium of 7,000 francs for his designs marked "Tout sur Rue." Premiums of 6,000 francs each were awarded to MM. André Ventré and Léon Besnard, both "architectes diplômés," and 5,000 francs each to MM. Gustave Majou, V. Eichmuller, and Gaston Le Roy, all also "architectes diplômés." The other eighteen competitors received each a sum of 2,000 francs as indemnity, instead of the 1,500 francs originally intended.

The members of the jury were MM. H. P. Nénot, Président of the Société Centrale des Architectes, and P. Wallon, a member of that society; Louis Bonnier, Président of the Société des Architectes Diplômés, and Roussi, a member of that society; Laloux and Pascal, both architects elected by the competitors; five members of the Committee of the "Fondation Rothschild," and the Secretary of the Committee.

The piece of ground chosen as the site for the construction of these dwellings is situated in one of the poorer quarters of Paris, and is a triangular piece bounded by the Rues de Prague, Roussel, and Beaudélaire, with frontages of 145 metres, 90 metres, and 95 metres respectively. The drawings required for the final competition were:—A general plan of each floor; the façades on each street with sections, all to the scale of 1 c. per metre (about $\frac{1}{8}$ in. to the foot); a detail of one of the façades at double that scale; a summary description; and a general estimate of cost and revenue.

Of the premiated schemes, that by M. Rey, to whom the first premium was awarded, appears certainly the most interesting in every way, although it is very possible that the method of planning would not appeal to English architects who make a speciality of economical dwellings. M. Rey places his principal façade on the Rue de Prague, with a central block divided from the other buildings by a staircase on either side forming a feature, and two small return ends on each of the side streets. Two wings at right angles to the main front, placed on either side of the central block, reach as far as the further ends of the side streets, with small return ends on these streets. A large central courtyard and two smaller courtyards on the side streets, to be planted with trees, and to contain benches and shelters, afford a free circulation of air on all sides of the buildings, which are six stories high, with mansard roof and flat above. The ground floor is divided up into shops of various dimensions for food supplies on the co-operative principle, and several workshops and ateliers for the electric lighting of the buildings, and for supplying motive power for the workshops on the upper floors. The ground floor of the central block on the Rue de Prague contains a large restaurant for the tenants, a library, and a reading-room. The basement contains the store-rooms for the shops, the heating batteries, a bathing establishment, with hot and cold baths, and a laundry for the tenants. The mansard roof above the sixth floor is specially arranged and reserved for linen drying-rooms, and the flat above for airing purposes. All the six floors are alike in plan, and comprise a series of compact dwellings, each consisting of a kitchen, dining-room, and two or three bedrooms, with a water-closet for each dwelling. A wide staircase, lighted at both ends, serves each set of four dwellings per floor, two on either side, and these staircases thus divide up the buildings into blocks containing four to six dwellings per floor. The façades, which show a tendency towards a modern style, are plain, without any mouldings or strings from ground floor to roof, but a good effect is obtained by the breaking up of the roof line, which is higher over the blocks than over the staircases dividing each block. The perfectly plain fronts are relieved in a pleasant manner by the projecting bay-windows of the dining-rooms covered with red tiles. It is not easy to judge from the drawings the materials with which the façades would be constructed; from the appearance of the drawings they would be of dressed stone throughout, but as stone would form a too expensive item for these buildings if employed in a wholesale manner, it is probable that the author of the designs intends building with brick, with stone dressings here and there, the whole surface of the brick being covered with one of the coloured cement mortars now largely employed at Paris. The plain surfaces of the bay-windows are relieved by a colour decoration of flowers and fruit, probably in relief.

M. Provensal, who received the second premium, places a long façade on each street, with a large central courtyard or garden planted with trees, having at its centre an oval building, containing a bathing establishment and the electricity supply. The ground floors of the main façades are arranged for

shops, and the upper floors contain dwellings, comprising kitchen, dining-room, one large bedroom, and two small bedrooms for children. The planning is good and the dwellings compact, the staircases numerous and easily available; the plans and façades are not broken up in any special manner; the façades are simple, and are characteristic of the usual Parisian architecture. M. Bertin, the winner of the third premium, takes up about half the length of each street front with his façades, joining the blocks on the longer street with those on the side streets by two diagonal blocks, thus leaving a large central courtyard with a frontage well open to the street, and two smaller courtyards open to the side streets. The ground floor contains a number of shops on the street fronts, and dwellings in the diagonal blocks on the courtyard sides, an establishment for baths, and a crèche for minding the younger children during the day. The basement contains a large meeting-hall, a laundry, and the heating arrangements. On the six floors are sets of dwellings, comprising kitchen, dining-room, and two or three bedrooms, with separate water-closets. The façades are of brick, with stone dressings, and are quiet and simple in appearance.

THE LIÉGE INTERNATIONAL EXHIBITION.*

HERE, again, Belgium is well to the front with an admirable collection of boilers, engines, and miscellaneous machinery. Eight travelling cranes have been erected here, four having a lifting capacity of 30 tons, and the others of from 10 tons to 12 tons. These machines were furnished by the Société John Cockerill, the Société Titan Anversois, the Compagnie Internationale d'Electricité, the Société Stuckenholz, the Société Gilain, Gustin Fils, and the Westinghouse Company. Out of the 36,000 sq. yds. covered by the Halles des Machines the celebrated Société John Cockerill take up an area of nearly 1,500 sq. yds. The exhibits of this company are all upon a grand scale, including gas-engines of 500 h.p. and 1,200 h.p., a large compound steam-engine, direct-coupled to an electricity generator, a propeller shaft 50 metres long, marine ordnance, and a 10,000 h.p. rolling mill engine. The latter was built for the joist and rail-rolling train at Seraing, and deserves careful inspection. The engine has three high-pressure cylinders of 1·35 metres diameter, and three low-pressure cylinders of 0·90 metres diameter, the stroke being 1·30 metres. The connecting rods are attached to cranks on the main shaft, each separated by an angular distance of 120 deg., and balanced by massive counter-weights. At one end of the main shaft is a coupling for direct connexion with the rolling train, whose operations will be controlled from an elevated platform where the starting and stopping levers are placed conveniently for the use of the driver. The floor space occupied by this engine is about 15 metres by 11 metres, and the height from ground level, apart from the elevated platform, about 4·50 metres. Notwithstanding its enormous size, the proportions of the engine are so good that the visitor fails to realise how great are its dimensions until he begins to compare them with those of surrounding objects. The Belgian display of machinery includes several large sets of generating plant. The Société St. Léonard, of Liége and Herstall, show a 600 h.p. gas-engine and dynamo using producer gas generated in the Halle des Chandières; MM. Carels Frères exhibit two generating sets of similar size, one operated by steam and the other by petrol, the generators being made by the Ateliers de Constructions Electriques de Charleroi; the Ateliers de la Meuse have a compound tandem engine coupled to a 450 kilowatt generator; the Société van den Kerchove, of Ghent, in conjunction with the Compagnie Internationale d'Electricité of Liége show another set of about 600 h.p.; and there is a further set of similar capacity by the Société Preudhomme and the Ateliers Jaspar. In addition to the foregoing nearly two dozen sets of from 250 h.p. up to 400 h.p. are to be found in the Belgian section, the names of the chief makers being the Société Maison Beer, the Compagnie Internationale d'Electricité, the Ateliers de Constructions Electriques de Charleroi, the Société d'Energie, the Ateliers Jaspar, the Société Liégoise, M. Heinrichs, the Société de Gilain, the Société du Thiriau, the Société le Phœnix, the Société Lachaussée, the Société des Moteurs, the Ateliers Walschaerts. Several of these firms also exhibit motors and electric-lighting apparatus in considerable variety.

*Continued from page 63 *ante*.

Some excellent types of pumping machinery are shown by several local firms. Among these we may specially mention the electrically-driven high-pressure pumps for deep mines on the stand of the Ateliers de la Meuse; and a neatly-designed 125 h.p. electrically-driven high-pressure pumping set by the Société Liégoise. Winding machines, mining tools and lamps are also strongly in evidence, as also are steel and wood pulleys, valves, automatic oiling appliances, and engineering sundries in great variety. There are also good selections of bakers' machinery, textile machinery, machinery for metal working, and steam-boilers. Taking the Belgian exhibits in this department alone, they must be regarded as a most striking demonstration of the varied and important industries conducted in this small but enterprising country. Still further proofs of industrial activity are given by the adjoining Halle des Chaudières, where more than twenty-four steam-boilers of different types are installed for the generation of power. As shown by the following list of exhibitors' names, nearly all the boilers are of Belgian make:—MM. Mathot et Fils, Bailly Mathot, Brouhon, Chaudronneries Liégoises, Ateliers du Thiriau, Chaudronneries Piedbœuf, De Naeyer et Cie, Herman, Grille et Cie, Roser, Ateliers de Boussu, Fétu-Defize, Smal et Rasquinet, and Babcock et Wilcox. In addtion to these boilers, which are of the Cornish, Lancashire, and watertube types, the Halle des Chaudières contains a complete producer plant for the provision of gas to the motors of the Société St. Léonard. Those who wish to examine the details of boiler construction can do so in a section of the Halle des Machines, where seven or eight firms have spaces.

The next sections to be visited are those of France, England, the United States, and Germany. The French section is of much general interest to engineers, including steam and gas engines and machinery by most of the leading makers in that country. The English section is very small, and all the exhibits taken together occupy less space than the stand of the Société John Cockerill in the adjoining hall. The chief exhibitors are Messrs. Armstrong, Whitworth, & Co., Thomas Robinson & Son, Alfred Herbert, Jones & Lamson, Reavell & Co., the Robins Belt Conveyor Company, and W. & T. Avery. Although these and other exhibitors adequately uphold the reputation of British workmanship, the small dimensions of the collective exhibit cannot give foreign visitors any correct idea of our great engineering industries. The American section is of still more meagre dimensions, possibly owing, in some measure, to the fact that many engineering firms in the United States are directly represented by Continental houses and agencies. The German section is of considerable extent, covering an area of more than 5,000 sq. metres, and including numerous exhibits of engines, electrical machinery, flour and baking machinery, mining, hoisting, and other apparatus. The prominence of the German display indicates the importance attached to this exhibition by industrial firms in the Fatherland. As a matter of fact, the geographical position of Liége makes the present exposition almost as useful to Germans as if it were held within their own boundaries.

The last part of the Halle des Machines remaining for exploration is that reserved for railway rolling stock and material. Just outside the building several installations of signalling apparatus deserve inspection, and along the same wall, but inside, is a very interesting model, exhibited by the Administration des Chemins de Fer de l'Etat Belge, consisting of a miniature railway line, on which run models representing the first and last locomotives used on the State railways. On the occasion of our visit this line was not in running order, but M. J. B. Flamme, Inspecteur-Général de l'Administration, was good enough to open the cases containing the locomotive models and to explain the exhibit. It is interesting to recall the fact that the first locomotive used in Belgium, and at the same time the first employed on the Continent, was made in 1835 by Robert Stephenson, of Newcastle. Another circumstance on which British engineers may congratulate themselves is that the type of locomotive now being adopted over the Belgian State railways is copied by permission from the designs of the engineer to the Caledonian Railway Company. A very fine collection of powerful engines will be found in this part of the hall, many of them having been made for the State railways by the Société John Cockerill and the Ateliers de la Meuse. The most interesting feature in the collection is the application of Schmidt superheaters to several locomotives built for the Belgian State Railways, this being practically a new departure so far as Europe is concerned.

Passing outside the Halle des Machines, the visitor finds, along the bank of the Ourthe, several exhibits either in the open air or in small pavilions. One of the most striking is a novel form of travelling crane made by the Société Liégoise. This appliance has a strongly-built tower on the right hand, from the upper end of which extends a lightly-built lattice girder furnished with a travelling carriage at the further extremity, the wheels of this carriage running on rails supported by steel trestle construction. The tower moves on rails laid on the ground, and at the top it carries a swivelling derrick crane for handling materials. For some purposes this crane would be very useful, and we should imagine its first cost to be far less than that of an ordinary Goliath.

Near by is a fine example of water-pipes in the form of a trophy by the Société de Vennes, and in the same neighbourhood are pavilions containing German well-boring apparatus, a new form of air filter for the ventilation of buildings and other purposes, welding by the autogenic process, and acetylene light apparatus. Then comes a fine pavilion dedicated to civil engineering, and a smaller one to crushing machinery. This portion of the exhibition was in a somewhat chaotic condition when we saw it, but no doubt everything is in order by this time.

Crossing the Pont de Fetinne, we next enter the Quartier du Vieux Liége, chiefly interesting to those who desire to study reproductions of numerous historical houses and monuments formerly existing in the town of the Princes Evêques. Beyond the second bridge is the Quartier de Fragnée, chiefly a place for amusement and entertainment. Still, it contains some exhibits of technical interest. One is a large steel structure, which at first sight appears to be a very feeble imitation of the Eiffel Tower, but really is the framework supporting an enormous boring machine erected by the German Mine Boring and Drilling Company. The Pavillon des Eaux et Forets and the Palais de l'Agriculture are decidedly worth visiting, and the latter contains some good examples of Belgian agricultural machinery. The Parc de la Cointe, constituting the fifth section of the exhibition, contains little worthy of special notice, but deserves a visit if time permits.

In conclusion, we may point out that the main feature of the exhibition is represented by the display of Belgian products, which constitutes a great object lesson to the world, and shows what can be accomplished by a very small country possessing mineral wealth and an industrious and enterprising population.

BAPTIST CHAPEL, FRANT, KENT.—The stone-laying ceremony of the new Baptist Chapel at Frant took place recently on the site of the old chapel, Myrtle-road. The work is being executed by Mr. Thos. Stanbridge, builder, of Tunbridge Wells, the architect being Mr. J. Brider, also of Tunbridge Wells. The new church will be 40 ft. long by 25 ft. wide, and will have an estimated accommodation for about 230 persons. The building will be of red brick, with stone dressings.

ALL SAINTS' CHURCH, BELFAST.—The foundation-stone of an addition to this church in University-street was recently laid. The work consists of chancel, vestry, organ chamber, and other accommodation. The style will be in keeping with the present building, which is designed in the early English period of Gothic architecture. The builders are Messrs. Hugh Laverty & Sons, Belfast, and they are under the supervision of Mr. W. J. Fennell, also of Belfast, who drafted the original plans.

DOORWAY TO STAIRCASE, DURHAM CASTLE.

THIS fine example of a small Norman doorway is on the second floor of Durham Castle, now part of the buildings of Durham University.

The illustration is from a drawing by Mr. Percy Robinson.

THE ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

A SOUTH WALES district meeting of the members of the Association of Municipal and County Engineers was held at Swansea on Friday and Saturday, July 14 and 15. The members assembled in the Council Chamber of the Guildhall on Friday morning, when they were received and welcomed by the Mayor (Ald. W. H. Spring), who was accompanied by other members of the Swansea Corporation.

Mr. A. E. Collins (Norwich), President, occupied the chair, and there were present:—Messrs. J. T. Eayrs (Birmingham), J. S. Pickering (Cheltenham), G. Bell (Swansea), J. D. Bars (Bromyard), H. A. Clarke (Briton Ferry), W. J. Davies (Blaine), J. Cox (Margam), T. Lloyd Edwards (Glamorgan), C. F. Gettings (Teignmouth), W. E. Clason Thomas (Neath), C. C. Hooley (Patricroft), H. L. Griffiths (Brecon), R. H. Haynes (Newport), M. Hoskins (Mumbles), J. Humphreys (Maesteg), D. M. Jenkins (Neath), W. P. Jones (Cymmer), J. Morgan (Ponterdawe), G. S. Morgan (Pontyclun), G. L. Morgan (Pontypridd), R. C. Mawson (Evesham), G. A. Phillips (Glamorgan), T. H. Tresseder (Cardiff), C. H. Priestley (Cardiff), H. D. Williams (Ogmore and Garw), M. Williams (Bridgend), G. Watkeys (Llanelly), P. R. A. Willoughby (Pontypridd), R. H. Wyrill (Swansea), and a number of members of the Swansea Corporation.

The Mayor heartily welcomed the Association to Swansea, and in doing so strongly approved of its aims and objects.

The President, in acknowledgment, said the object of the Association was to obtain knowledge, which was a benefit, not only to the members, but to the municipalities which they served.

Councillor Sinclair, Chairman of the Electricity Committee, also joined in the welcome, and said such meetings must be of great value to the municipalities.

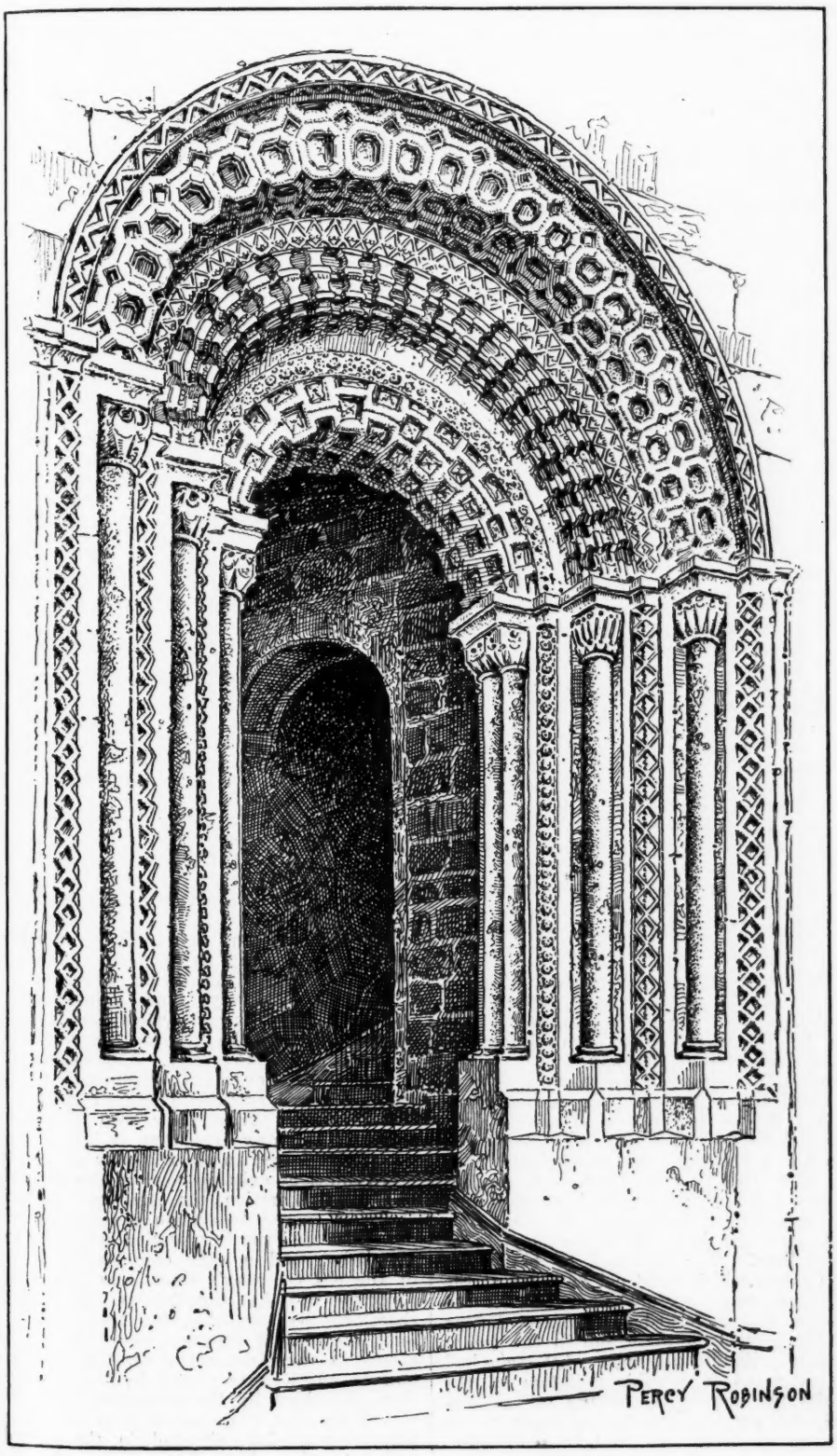
The members then proceeded to inspect the destructor works, the electricity works, the new fire and police station, the tramway system, and the Mannesmann Steel Tube Works at Landore. The members had luncheon together at the Hotel Metropole.

At the conclusion of the round of visits the business meeting was held in the Council Chamber, Mr. A. E. Collins presiding.

On the proposition of Mr. D. M. Jenkins (Neath), Mr. W. E. Clason Thomas (Neath) was re-elected Hon. District Secretary.

Municipal Works in Swansea.

Mr. G. Bell, A.M.Inst.C.E., Borough Surveyor, presented a paper on "Some Municipal Works in Swansea." He said the town was picturesquely situated at the mouth of the river Tawe, on the shores of one of the finest bays in the kingdom. The configuration of the borough was of a very hilly and diversified nature, which, although presenting many features of natural beauty, made the carrying out of most of the municipal works which had to be undertaken more difficult and costly than would be the case in a flatter district. For a long time Swansea had been resorted to as a watering-place, and during recent years it had been steadily increasing in favour, and in the summer time the sands and parks were crowded with visitors from all parts of the country. The geological formation was part of the great coalfield of South Wales, the dip of the measures being generally very steep and in a northerly direction. The coal worked was highly bituminous, and the native sandstone was very good and largely worked, and used for building operations of all kinds. Swansea was at the present day, and had been for many years, the chief seat of the copper, spelter, and tinplate trades, and might claim to be one of the most important and progressive centres of business in the kingdom. The development of the port under the harbour trustees had kept pace with all requirements, the present wet-dock accommodation extending over 58½ acres, with 32 ft. to 34 ft. depth of water on the sill. The construction of a new deep-water dock had been commenced, to accommodate the largest class of steamships afloat, to deal with the increasing trade of the port. For this purpose it was intended to reclaim nearly 400 acres of land on the foreshore. The dock would have an area when completed of 107 acres, and the depth of water on the sill would be 40 ft. The estimated cost, with equipment, was 1,250,000*l*. The first sod was cut by H. M. the King in July last year, and the dock was to be called the King's Dock. A new plate-girder drawbridge had just been completed by the harbour trustees over the north dock lock, which was necessary for the largely-increasing traffic between the east and west sides of the river. This bridge had a double line of roadway, on which tramways were laid, two footpaths, and a line of railway. Over the river Tawe a new lattice-girder swing bridge was erected by the harbour trustees in 1897, and had the same accommodation as the new drawbridge. Both these bridges were designed by Mr. A. O. Schenk, the engineer to the trustees, and constructed by Messrs. Handyside, of Derby. The area of the borough above high-water mark was 5,070 acres, and the population at the census of 1901 was 94,514, and was now estimated at 100,000. The number of houses was 19,487, giving an average number of 5·13 persons to one house. The present rateable value was 447,718*l*., and the outstanding debt for sanitary purposes only 703,000*l*. The average number of new houses and shops erected each year for the past ten years was 164, and this year there had been plans for 282 new shops and houses. At the present time there was a considerable scarcity of houses, but this appeared to be likely to be soon overtaken, as shown by the largely-increased number of plans passed during this year to date. As opportunities had occurred in connexion with the expiration of leases and the rebuilding of premises, the Corporation had, since 1892, expended 12,585*l*. in purchasing property and carrying out the widening of various streets. In connexion with the widening of Castle-street, which had long been a much-needed improvement in the centre of the town, property



Doorway to Staircase, Durham Castle.

costing 114,122*l.* had been acquired by agreement since 1895, and there now only remained five properties to be purchased, which would be dealt with compulsorily under the Corporation Act of 1902. Castle-street had a length of 400 ft., and at several points was only 18 ft. wide. It was intended to widen the street to 50 ft., which would give a wide main artery and enable the connecting link of the tramways to be carried out. A dust destructor had been erected for the Corporation by the Horsfall Company; the total cost of the work, including some extras, would amount to 11,000*l.* The destructor had five cells of the back-feed type, each having a grate area of 42 sq. ft, fitted to steam jets for forced draught.

The steam generated for the burning of the refuse was intended to be used chiefly for driving the electrical machinery for working portions of the tramways.

The destructor began work on June 27, 1904, and it was satisfactory to note that no nuisance from smell, smoke, or dust, either from the stack or the cells, had been caused so far from the burning of refuse.

The average quantity of refuse delivered and dealt with by the destructor since the time of working was 52 tons 14 cwt. per day, the largest quantity in one day being 80 tons 15 cwt.

The weight of residue produced had not yet been tested, but it was believed to be within the 33 per cent. guaranteed.

From tests made by the Borough Electrical Engineer, the average quantity of water evaporated in the boiler from the burning of the refuse was equal to 7,125 lb. per hour, reduced to 4,453 lb. per hour by the jets for forced draught, the pump, and the clinker engine, which would be equivalent to 222 indicated horse-power per hour available for use for electrical purposes at the stop valve of the boiler.

The mortar made from the clinker had amounted to 720 tons, and was used for all the purposes of the Corporation in the town. A quantity of the graded clinker had been used for making up roads and footpaths and as racking for granite paving.

The question of utilising the clinker for the manufacture of flags and bricks was under consideration by the Council, and tenders for the necessary plant had been obtained; but the matter was in abeyance for the present, or until it was ascertained how much, if any, steam could be spared for the purpose.

A trial was now being made at the destructor works with clinker of a hollow concrete block machine, manufactured by Messrs. Prettyjohn Bros., of Terre Haute, Indiana. The machine was worked entirely by manual labour, and made hollow blocks 20 in. long, 7½ in. high, and 8 in. wide, as stretchers, and other sizes as halfs, quarters, corners, etc. The faces of the block could be moulded rock-faced, fine-picked, or plain-champered, as required. Specimens of the blocks made and the operation of the machine, which was the first to be used in this country, could be inspected at the works. If the blocks turned out as stated, their manufacture would be the means of utilising a considerable portion of the clinker from the destructor, and might help forward the scheme which the Corporation had in hand for providing cheap and good dwellings for workmen, which were much required at the present time.

The intended culverting of the Burlais brook had long been contemplated by the Corporation as a very necessary sanitary improvement.

The burgesses were the possessors of a large and valuable estate, lying within the old town, which they acquired mainly under the Town Hill and Burrows' enclosure of 1762. Parts of the property had been disposed of from time to time for the construction of docks, railways, and other purposes.

The present area was about 645 acres, the bulk of which was included in old leases falling in between the years 1901 and 1920, when a considerable increase of revenue would accrue to the town.

As old leases had fallen in the property had been re-leased at greatly-increased rentals, and whenever opportunity offered old leases had been surrendered and new leases granted on equitable terms.

The number of leases or separate lettings, according to the register prepared in 1903, was 582, and the revenue 10,092*l.*

A considerable portion of the land which was in hand and could be dealt with had been let on lease and largely built over, and other parts of the estate had been laid out into streets and terraces, presenting very eligible sites for workmen's dwellings in proximity to some of the most important works in the borough.

As the urban sanitary authority, the town possessed another valuable asset in the surplus land which was acquired in 1876-9 for the improvement scheme under the Artisans' and Labourers' Dwellings Act. Under this scheme a large number of insanitary dwellings in the centre of the town were cleared away, the construction of new streets and the improvement of existing streets carried out, and a large portion of the new frontage created thereby leased and built over. The most important improvement was the formation of Alexandra-road, a new street 300 yds. in length and 60 ft. in width, upon which were erected the fine buildings containing the free public library, schools of science and art, and art gallery, and other large and important buildings.

The capital expenditure on this improvement scheme amounted to 121,992*l.*, and the revenue derived at present from leases and other lettings amounted to 1,267*l.*

The new Central Police and Fire Brigade Station was completed in March last. Morriston red brick with Bath stone dressings were used in the elevations. The contract for the whole work was 7,764*l.*, and this had only been very slightly exceeded.

Swansea was one of the six municipalities in the country which possessed a telephone exchange. There were now instruments and lines in operation on the Corporation service to the extent of 1,200.

The town had a free library, schools of science and art, and art gallery, and there were ten public parks, with an area of 103 acres.

The tramways were worked by a public company, and electric traction was adopted in 1898. Considerable opposition was taken by property owners and ratepayers in part of Oxford-street and Temple-street to the proposed lines in those busy and comparatively narrow streets (the carriageways of which varied from 20 ft. to 25 ft. in width; but since the work had been completed, double lines being laid, the policy of the Corporation appeared to have been entirely justified, as the tramway traffic and the ordinary traffic were carried on with very little, if any, inconvenience to tradesmen in these streets, and the advantages to the inhabitants generally in regard to these central lines were very apparent.

The lines were leased by the Corporation to the tramway company for terms of twenty-one years at rents which covered the interest and sinking fund on the expenditure, and were worked by the company in conjunction with the old lines.

The British standard specification and erections were adopted for the rails, those for straight track being 95 lb. to the yard and for curving track 101 lb. to the yard, both being 6½ in. deep.

A considerable portion of the track was paved with wood, mainly Yarrah, but for steep gradients creosoted pine was laid.

The President said he noticed with interest that the Swansea Corporation had found that a double track in roads of less than 26 ft. wide offered less obstruction than a single line of tramway.

Mr. J. T. Eayrs (Birmingham) proposed a vote of thanks to Mr. Bell for his paper. He said it was the practice of some county surveyors to use on main roads metal not broken to a uniform gauge throughout. The idea was that where they had modern appliances for scarifying and steam-rolling the necessity for uniformity of gauge was not so great as previous to the adoption of steam-rolling. The proposal to barge out to sea refuse which could not be taken at the destructor was an important matter to Swansea, having regard to the great fishing industry carried on there and in the neighbourhood. He did not know what steps had been taken as to possible pollution of the fisheries by barging this refuse to sea, but he should say that great care ought to be exercised in doing this, and he would like to know what steps, if any, had been taken to ascertain what effect it was going to have on the fisheries.

Mr. Willoughby (Pontypridd) regarded the practice of allowing owners to do private street works in front of their own premises as objectionable.

Mr. J. S. Pickering (Cheltenham) was surprised to hear that Swansea had been so far behind other towns in having only recently constructed a destructor. There were very few towns of that size but what had had a destructor for years. Swansea was to be congratulated on coming into line with other towns which had been more progressive in that respect. The deposit of refuse on tips which later became building sites was a most insanitary thing, and the sooner it was done away with in every town where it was possible to erect a destructor the better. In Swansea the destruction of the refuse appeared to be carried out in a very efficient manner, and at the same time very valuable use was made of the clinker.

Mr. J. Cox (Margam) said that, while tar paving was the cheapest form of paving, he found it perished in seven or eight years.

The President said he had some tar paving which had been down twenty years and was still sound. With the ordinary facing every three years, at the trifling cost of about 3d. per square yard, tar paving would last for a considerable time. It was not suitable for town roads, but for suburban roads and where the traffic was of a moderate character he knew nothing better.

Mr. Bell, in reply, said the Corporation would take every precaution to protect the fishing industry. He did not think there was likely to be any nuisance at all, as it was proposed to take it three miles beyond the Mumbles Head, where the tide would get hold of it and carry everything away.

Electricity Undertaking, Swansea.

Mr. C. A. L. Prusmann, Borough Electrical Engineer, read a paper on the "Swansea Electricity Undertaking and Tramway Equipment." He said the Swansea Corporation had nearly completed some twelve miles of electric tramways and light railways, the bulk being now in operation, and the remaining section, it was hoped, would be open in the near future.

The overhead equipment of these tramways and light railways had been carried out by span-wire and bracket-arm construction; no centre-poles had been employed, and no bracket-arms over 15 ft. 6 in. had been used. The line had been erected for straight under-running trolleys, with fixed trolley-heads.

Owing to the peculiar atmospheric conditions which prevailed in Swansea, on account of the various works in the neighbourhood, it had been deemed advisable to use only phosphor bronze for span and guard wires, as against the usual practice of steel wire, as it had been found that the life of a steel wire under the conditions in Swansea was very short indeed.

This course undoubtedly had added very considerably to the cost of construction, but it was hoped that the maintenance of the overhead equipment would be very much reduced on this account and the life greatly prolonged.

The tramways and light railways in Swansea were interesting from one or two standpoints. Prior to the laying down of the Corporation tramways and light railways the electrical tramway system was entirely in the hands of the Swansea Improvements and Tramways Company, who owned the whole of the overhead equipment, cables, etc., and who supplied electrical energy to the tramways from their own generating station. The new tramways and light railways were leased to the company under certain conditions existing between the company and the Corporation, the company supplying electrical energy to certain portions of the new lines and the Corporation supplying the remainder, and a very considerable length of the old company's lines were now being supplied by the Corporation. It would, therefore, be seen that the tramways and light railways in Swansea were supplied by means of three distinct generating stations, two of which were owned by the Corporation, the third by the company. The two owned by the Corporation were the main generating station, situated in the Strand, and at the destructor works. In the

ordinary course those sections of tramways which the Corporation had to supply with electrical energy would receive a supply from the destructor works. The main station would take up the supply on those occasions when the load on the tramways was too great for the destructor works to deal with or when the destructor works were shut down for repairs, overhauling, etc. As far as possible, arrangements had also been made to enable the tramway company's station to supply current to those sections which in the ordinary course received their energy from the Corporation works in the event of a breakdown happening at the Corporation works, and *vice versâ*. By adopting this course it would be seen that the amount of standby plant was reduced to as low as possible, as the spare machinery at the Strand station would act as a standby to both tramways and lighting. The remaining points in connexion with the new light railways which should be mentioned were:—

Running cars over the drawbridge spanning the north dock lock and the swingbridge crossing the river Tawe. In the case of both these bridges the current was automatically disconnected and connected, when the bridges were open and closed, in such a manner as to make it impossible for a car to approach the dock or the river to within a dangerous distance while the bridges were open. He was not aware that a similar case had had to be dealt with in any town in the United Kingdom. The work of installing the overhead equipment had been entrusted to Messrs. Dick, Kerr, & Co. It was interesting to note that all the tramway poles had been made in the town by the Mannesmann Tube Company.

Mr. Willoughby (Pontypridd) asked, with reference to the electricity installation at the destructor works, whether any working arrangement had been come to between the two departments as to the benefit of the steam produced by the Health Department. That question had arisen in his district, where the Health Department had gone to the expense of the destructor, and the Electricity Committee were expecting to get the benefit of the steam produced. There was likely to be considerable friction.

The President said the details of the automatic connexion and disconnexion of the electric current for the tramways on the drawbridge and swingbridge crossing the river would be of great interest, as it was a difficult problem to solve.

Mr. J. T. Eayrs (Birmingham) deprecated any friction between the various departments of a municipality. All the departments should work together in harmony and concord, and not for one to try and get the better of the other.

Mr. Prusmann said the arrangement with the Streets' Committee was to pay a certain price for the steam raised by the destructor, and he believed the arrangement would prove satisfactory to both the Streets and Electricity Committees. With regard to the trolley wire on the bridges, he did not think there was another place in the country where they had to deal with a drawbridge and a swingbridge, and when the whole of the work was finished he would draw up a full description of the work and send it to the Association and the engineering papers.

On Saturday, July 15, the members travelled by special train to Cray to inspect the new reservoir and masonry dam. After the inspection of the works they were entertained to luncheon by the Swansea Corporation. After luncheon, the engineer read a paper descriptive of the works, which was briefly discussed.

Swansea Waterworks.

Mr. R. H. Wyrill, M.Inst.C.E., Waterworks Engineer, in his paper on "The Swansea Waterworks," after describing the present works for the supply of Swansea, said the yield from the existing reservoirs, being in an average year about 2,664,000 gals. and in a very dry year about 2,000,000 gals. per day, was quite inadequate for the requirements of Swansea, which had a population at the present time of about 100,000 inhabitants and many important manufactories. The Swansea Corporation therefore determined boldly to face the difficulty, and to construct works which would give them an ample supply of pure water for many years to come, and would be entirely free from all trouble as to mineral workings. In order to do this it was necessary to construct works nearly thirty miles' distant, and the river Cray was selected as being the best source, as the rainfall was known to be heavy, the elevation great, the watershed being entirely mountain pastures with only two small shepherds' cottages, and the facilities for the construction of the works being good.

The watershed consisted of 2,640 acres of excellent gathering ground, in the wettest portion of South Wales.

Parliamentary powers to carry out the works were obtained in 1892, but, in passing through Committee, clauses were imposed by which any water authority, any part of whose district was within one mile of the main pipe-line might demand and obtain a supply for their requirements, leaving a prior right to Swansea of 25 gals. per head. The authorities referred to included the whole population of the Swansea Valley and the Swansea district. These populations were situate on the coal measures, and their local waterworks were also feeling the effects of the coal workings, which would in time destroy their springs as the coal was worked, and they would rely upon the Swansea works for their supply. This additional population at the present time numbered about 60,000, and was growing rapidly. The demands upon the Cray works were therefore much more extensive than was originally contemplated, and the lines had been increased in carrying power.

The Act of 1892 provided for the construction of a storage reservoir, tunnel, pipe line, and service reservoir; these works were now approaching completion.

The storage reservoir would contain 1,000,000,000 gals. of water, and be 100 acres in extent, being one and a quarter miles long and a quarter of a mile wide. The topwater was 1,000 ft. above the sea level, and the water was impounded by a dam 1,250 ft. long and of a depth of 144 ft. from foundation to top-bank level; the depth from overflow level to the surface of the rock at the old river course was 100 ft., the rock excavation in the centre of the dam being thus 37 ft. deep.

The whole of the gathering ground and the site of the works were on the old red-sandstone formation, but the site of the dam was found on examination to contain many minute cracks, which had been caused by ice pressure, this being a valley of ice denudation. These cracks had to be followed down and out; and this had caused considerable expenditure of time and money, there being nearly 50,000 cubic yds. more excavation in the dam than was contemplated. All these difficulties had now been overcome, and the work was now constructed up to a level of 15 ft. below overflow level.

The work was originally let by contract, but subsequently the Swansea Corporation took the work over, and had since carried it on by direct administration, and during the last two years great progress had been made under the works manager (Mr. B. MacKenzie), over 60,000 cubic yds. of concrete having been put in during twelve months.

According to the author's original design, the Cray dam was to be constructed of rubble masonry in cement mortar, with blocking facing from stone obtained from quarries on the ground, and being the blue beds of the old red sandstone; but it was soon found that, although there was an ample supply of stone on the ground, it was of such irregular shapes that it would be difficult and expensive to dress it for facing blocks, and it would also be expensive to dress it roughly for rubble. Therefore it was decided at an early stage of the construction to alter the character of the dam by constructing the hearting of cyclopean masonry and substituting blue Staffordshire bricks for the facing throughout. This had been done, and the author was of opinion that a great saving had been made in time and cost in the hearting and the facing. The author had visited many masonry dams on the Continent, and believed that brick had not been used as a facing for a masonry dam, with the exception of the water face of the small dam at Reinschied, in Germany, and the water face of the submerged dam at Rhayader.

Such a radical change in dam construction was not therefore undertaken without careful consideration; but the author's experiments on the relative water-tightness, durability, and resistance to frost of stone and blue brick, which were carried on over several months, led him to the conclusion that this facing would be absolutely successful in every way, and it offered undeniable advantages in speed and ease of construction.

The brick facing on both the inner and outer facing was of an average thickness of 13 in., carefully tied into the hearting. All external brickwork was of pressed blue-facing bricks, the inner being the best brindled bricks, all set in 3 to 1 cement mortar.

The hearting of the dam consisted of large blocks of stone as they come from the quarry, surrounded by Portland cement concrete, consisting of five of the crushed sandstone, two of sand, and one of cement; a richer concrete, with no plums, and consisting of 3·4 of crushed stone, two of sand, and one of cement, was laid all over the base of the dam and up to the water face of the dam.

The overflow water from the reservoir would pass over a granite weir crest 200 ft. long and down the back of the dam. This unusual length was provided to meet the violent floods which occur in the valley, due to the steepness of the surrounding hills, the water-tightness of the ground, and the very heavy rainfall. A roadway was carried along the top of the dam and crossed along the crest of the overflow in a series of brick arches.

A culvert, 13 ft. high and 8 ft. wide, was temporarily left through the dam to carry the stream during construction, and this culvert had been nearly filled with water during flood times. On completion of the work a 3-ft. cast-iron pipe, with a double set of 36-in. valves on the outer end, would be built in this discharge tunnel; the stopping at the inner end would be of brick in cement, and the remainder of the tunnel would be filled with concrete.

Compensation water to the extent of one and a half million gallons per day would be discharged through the 3-ft. pipes into the river Cray for the riparian owners and fishing interests on the rivers Cray and Usk.

The profile of the dam was lighter than was generally adopted, but was ample, the maximum stress being under eight tons per square foot.

The Cray reservoir, not being in the natural drainage area of Swansea, it was necessary to drive a tunnel commencing at the bottom of the reservoir and terminating in the watershed of the river Tawe, which passed down to Swansea. This tunnel was about three miles long, and was principally driven from the south, or Swansea end, and from a working shaft on the reservoir ground, or north end, these points being about 2,300 yds. apart. The headings met without any difference in level and within 4 in. from line, which was very satisfactory, as one heading had to be set out from a short base-line transferred down the working shaft, in which there was a considerable amount of water dripping. This tunnel was internally 5 ft. high and 3 ft. 6 in. wide, and was lined with three half-brick rings of brindled Staffordshire bricks in two to one cement mortar. The water flowing from the reservoir through this tunnel was regulated in a valve tower placed at the west side of the reservoir. The valves were placed in it in such positions as to decant water at 20 ft., 50 ft., and 80 ft. below overflow level; the upper valves would be 18 in. in diameter, and the lower valves 24 in. in diameter in duplicate, and were of the design known as roller-bearing valves. These valves were all worked from the valve-house built upon the top of the valve-tower, which was reached by a footbridge spanning from the valve-tower to an abutment on the side of the reservoir. After the water passed through the tunnel it emerged in a gauge basin, where screens were to be provided; after passing through which the water entered into the mains to Swansea. At the present time one main had been laid complete, and was 17 in. in diameter. It discharged 2,500,000 gals. per day into the service reservoir at Town Hill, which was at an elevation of 580 ft. above ordnance datum, immediately overlooking the town of Swansea. This main had been designed to stand the full pressure due to the water from the gauge basin; it was 23½ in. long, and on

completion there was not a single burst during the testing. The contractors for the pipe line were Sir John Aird & Son, the pipes being supplied by Messrs. D. Y. Stewart & Co., and the valves by Messrs. Glenfield & Kennedy, Ltd. The second line of pipes was now in contemplation, and would consist of a 24-in. main, which would deliver to a height of 350 ft. above ordnance datum into a service reservoir yet to be constructed.

The rainfall in the Cray watershed was remarkable, and the following particulars of the local distribution of rainfall might be of interest:—

The prevailing wind at Swansea was south-west. In the year June, 1899, to June, 1900, rain fell on 171 days, and out of these 171 days the wind was about south-west for eighty-five days. Again, taking the year 1903, it rain 223 days, and out of these the wind was between south and west for 112 days. Commencing at Swansea, they had 40 in., Morriston 45 in., Estalyfera 62 in., Nantyrwydd 75·15 in., Bwlch 112·91 in., Cray No. 2 75·69 in., Cray No. 1 71·78 in., Maescarnog 68·11 in., Brecon 48·50 in., Hereford 30·00 in.

Taking Swansea to Nantyrwydd, the increase of rainfall was about 1 in. per annum for every 26 ft. gained in elevation.

At the Velindre watershed the increase was 1 in. of rain for every 32 ft. of elevation.

The estimated cost of the Cray works was 566,000*l.*, of which 483,000*l.* has been expended.

Mr. C. H. Priestley (Cardiff), Mr. Harvey (Merthyr), and Mr. Haynes (Newport, Mon.) expressed their approval of the works and the economy with which they were being carried out.

PLANNING OF PUBLIC ELEMENTARY SCHOOLS.

THE new edition of the document containing the requirements of the Board of Education in regard to the planning of public elementary schools contains very little that is really new, though it differs in title from the previous document, in a significant manner. The old title was "Rules to be Observed in Planning and Fitting up Public Elementary Schools." The title of the new document is—"The Building Regulations; being principles to be observed in Planning and Fitting up new buildings for Public Elementary Schools, together with Rules as to construction and certain requirements as to plans." Thus the new paper takes a wider view of the subject, and professes to expound general principles as well as to lay down rules. Thus, Section 1, most of which is new, goes into the general question as to what is required in a school building, having regard to the system of teaching employed.

Though the greater number of the old paragraphs are embodied in the new Regulations, their grouping has been altered, in order to render more obvious the distinction between "Principles" considered in Part I., and "Rules," which are relegated to Part II., though the distinction is not quite logically preserved. Among the new principles laid down is one we are glad to see, to the effect that "corridors should be ful'y and directly lighted and ventilated"; a much-needed reminder. One too often sees it assumed that corridors can do with "borrowed lights."

Section 8 in Part I. makes one or two suggestions in regard to infants' schoolrooms and classrooms.

Section 10, referring to "Higher Elementary Schools," is for the most part new, and commences with the proviso that, though such a school should be planned in accordance with the principles applicable to an ordinary Public Elementary School, "it is important that the curriculum of the school should have been determined, and that it should have been generally approved by the Board before an architect is instructed." The list of special requirements for a Higher School is revised and altered in some particulars.

Among other points that are new is the memorandum (in Part II. "Rules") that "ample space is needed immediately outside a cloak-room"; a recommendation based, no doubt, on the experience of managers as to the crowding in narrow corridors in such a position. Another new and very necessary memorandum is to the effect—"The size of the inlets and outlets must be carefully adapted to the method of ventilation proposed. A much larger area is required when no motive force is provided."

Rule 10, Part II. gives some useful and important directions in regard to "water supply," a subject which, it is strange to realise, was not even alluded to in the system of Rules which preceded the present one.

In regard to the submission of plans, there are some directions as to procedure which do not appear in the old Rules, and are inserted apparently to facilitate applications to the Board. The remainder of the "Requirements" in regard to plans stand as before, except that there is a concession that preliminary plans may be drawn to a scale of $\frac{1}{16}$ in., though the Board's final approval cannot be given except on $\frac{1}{8}$-in. plans; and in place of the words, "A detailed specification separated under the several branches of the building trade," we have only in the requirement "a draft specification."

There is a clause stating the conditions of the recognition of new buildings by the Board; this forms in itself Part IV. of the paper. There is also, under Rule 2, Part II., a statement as to the conditions under which the Board will sanction temporary school buildings, which runs as follows:—

"(*f*) The Board are only prepared to sanction the erection of schools of a lighter construction, *e.g.*, in iron and wood, or other suitable material, in very special circumstances, as, for example, in colliery districts where, owing to mining operations, there is no site available upon which a building of the ordinary solid type can be safely erected; or where the population is not of a stationary character, as, for example, during the progress of a large piece of engineering work, or in the neighbourhood of a mine likely to be soon worked out; or where temporary accommodation is required during the building of a new school, or the reconstruction of an old one.

Where such buildings are proposed special care must be taken to ensure the comfort of the children with regard to warmth and ventilation."

A NEW SUGGESTION IN ARCHITECTURE.

(FROM A CORRESPONDENT.)

A BUILDING is now in course of erection in Cardiff, the design of which is very interesting. It is of rather unusual character, and one which may have useful suggestions for architects who are desirous of imparting some national feeling into their designs for Welsh work.

In Wales (and, of course, in Cardiff) there is a movement of archæological, historical, or patriotic tendency now receiving much attention, and which leans towards the liking and the study of Celtic. It touches that revival of interest in the Celt—not in Wales only, but in Ireland, Scotland, Cornwall, Brittany, and elsewhere—which has become known as the "Pan-Celtic" movement. In it the ancient Celtic literature and folklore hold their due place, with which appreciation of those remnants of Celtic Art which are seen in such beautiful old metal work as the so-called brooch of Tara, of that intricacy of the illuminator's handywork, revealed, say, in the Book of Kells, or of the incised stonework like that at Iona or at Margam and at many other places in the western edges of Great Britain.

There are certain crosses or memorials, etc., which have been made in recent years, more or less reproductions of the Old Celtic, but beyond these and the "Limnerslease" work in burnt clay produced in Surrey under the happy influence of the late Mr. G. F. Watts, R.A., and Mrs. Watts, there has been little to excite the interest of the designer far enough to take hold of Celtic Art as a basis for use in any field of modern architectural design.

It is in this connexion that the buildings at Cardiff are noteworthy. The architect (Mr. Edwin Seward) is only working in the usual modern materials, and the buildings adapted are of ordinary type built half a century ago and now altered for commercial uses. Architecturally, therefore, scope is restricted, and Mr. Seward's designs rather regard the buildings as a ground work for Applied Art. This gives opportunities for some varying methods. For instance, a central archway is embellished with plates of hammered copper, some square tea wood pillars are partially covered with embossed metal, and parapets in the front are to be filled with panels of thick leaded glass. In these adaptations of Celtic work are introduced, such as metal panels from the shrine of St. Molaise; of carvings from a shaft at Landough, near Cardiff, from the Great Wheel of Conbelin at Margam, from Pen Arthur, Pembrokeshire, and from Golden Grove, Carmarthenshire, etc.

A short corridor of shops forms a part of the scheme of alterations, and although the inevitable plate-glass must dominate, there are places—recessed galleries and wagon-head archways—where antique form and modern requirement will be found to blend satisfactorily.

The recent idea of roof gardens is worked out pleasantly in connexion with a few residential flats which form a portion of the scheme, and the flower and evergreen-holders are in the same spirit as to design.

Mr. Seward's "Celtic Corridor" experiment, when completed, will be interesting in new applications of Archæological precedents. Not only architects, but many others, who award a high place—especially in Wales—to the soundness and beauty of Celtic ornamentation, will recognise that its modern uses need not stop at the inscribing of stone or the decorating of missals.

RECENT RE-NAMING OF LONDON STREETS.

THE London County Council have informed the Court of Common Council that they intend to change the name of Skinner-street, Shoreditch, to "Pindar-street." Skinner-street, next north to the Great Eastern Railway terminus, leads out of Bishopsgate-street Without, between Nos. 119 and 121, into Appold-street. Its new name will commemorate the house—latterly the Sir Paul Pindar's Head tavern—which was numbered 169, Bishopsgate-street Without, at the time of its demolition in November, 1890, for an extension of the station by the Great Eastern Railway Company, who presented the front of the house to the Museum at South Kensington. In the pulling down of the house it was found that the carved front was constructed entirely of oak, whitewashed over, and not of timber and plaster as was commonly supposed, and that the fine ceiling corresponded exactly with one in the adjoining house (south). That house, No. 170, was acquired for purposes of the Metropolitan Free Hospital; its ceiling was secured for the Museum at the instance of Mr. Alfred Marks and the Society for Photographing Relics of Old London. It seems, then, that No. 170 had also been, together with the tavern, a part of the mansion, with a lodge and fruit garden in Half Moon-street at the rear, which Sir Paul Pindar, the opulent merchant, built for himself on his return from Italy at the close of Queen Elizabeth's reign. His epitaph at St. Botolph's Without describes him as "an inhabitant twenty-five years and bountiful benefactor to this parish." In 1611, James I., at the Turkey Company's request, sent Pindar to "the Turkish Emperor"; he returned greatly enriched after nine years' absence. Pindar was a patron of architecture, and gave 10,000*l.* towards the screen and south transept for Inigo Jones's work at Old St. Paul's. He introduced into England the manufacture of alum; he lent large sums to James I. and Charles I., and died, aged eighty-four years, in 1650. A drawing of his house will be found in Mr. Roland W. Paul's "Vanishing London," 1894; of the many earlier views we may instance those by J. T. Smith, 1792-1812, with details of the interior, Wilkinson, and Schnebbelie, with a plan of the old London Workhouse, the house, lodge, etc. The *Transactions* (1857) of the London and Middlesex Society contain the Reverend Thos. Hugo's description of the house and of some richly-decorated plaster ceilings in tenements at the rear. Alterations made during the past fifteen years involved the demolition of many houses, with side alleys, courts, and yards, on the west side of the main thoroughfare, and there is now a gap in the postal numbers between Nos. 159 and 199. The forty-one houses of Devonshire-place, St. Marylebone, are to be incorporated with Upper Wimpole-street. The consequent re-numbering of the houses will affect the identification of the homes of William Beckford, author of "Vathek" (No. 4, Devonshire-place); and in Wimpole-street of Admiral Lord Hood (No. 12), Edmund Burke (after his marriage), Sir Elijah Impey

(No. 65), and Wilkie Collins (No. 82). But a Society of Arts' tablet is affixed on the red brick front of the present No. 50, Wimpole-street, the home of Elizabeth Barrett Browning, and a similar tablet distinguishes No. 67, which Henry Hallam occupied during many years. That is the house, the home of A. H. Hallam (1811-33), which is cited in "In Memoriam":—

> Dark house, by which once more I stand,
> Here in the long unlovely street,
> Door where my heart was wont to beat
> So quickly, waiting for a hand.

Wimpole-street, however, is less dismal than it was in Tennyson's time, many of the house-fronts having been altered and otherwise rendered more cheerful. Of the several streets in east and central London which were named after Lord Collingwood, who sailed the *Royal Sovereign* into action at Trafalgar, that one which leads out of Brook-street into Broad-street, Shadwell, will henceforth be styled "Heckford-street," in honour of Dr. Heckford, the friend and benefactor of the poor in that quarter, and founder of the East London Children's Hospital and Dispensary for Women in Glamis-road.

THE BUILDERS' BENEVOLENT INSTITUTION.

THE fifty-eighth annual general meeting of the Builders' Benevolent Institution was held at 31 and 32, Bedford-street, Strand, W.C., on Wednesday, the 12th inst., at 3 p.m.

The minutes of the last annual general meeting were read; the Annual Report and the audited accounts for the past year were read and adopted. Votes of thanks were passed to the Past-President (Mr. William Downs), to the Honorary Treasurer (Mr. J. Howard Colls), to the Trustees (Sir Arthur C. Lucas, Bart., Messrs J. H. Colls, F. J. Dove, T. F. Rider, T. Stirling, and J. T. Bolding), to the Honorary Auditors (Mr. R. J. Ward, F.C.A., and Mr. J. T. Bolding), to the Executive Committee, Vice-Presidents, and Dinner Stewards.

Mr. Benjamin Hannen, jun. (Messrs. W. Cubitt & Co.) was elected President for the ensuing year, and Sir John Mowlem, Bart., Messrs. T. F. Rider, E. S. Rider, T. Stirling, jun., E. V. New, J. Carmichael, and W. Downs were re-elected members of the Executive Committee.

THE ARCHITECTURAL ASSOCIATION SUMMER VISITS:

IV.—MIDHURST, SUSSEX.

FOR the fourth summer visit of the current session Midhurst and district were selected for the afternoon of Saturday, 15th inst., and the members of the Architectural Association who journeyed to this old Sussex town were more than repaid for the distance undertaken by the interest of the places seen.

Apart from the beauty of this South Down country, the district contains much that is valuable to the architect, for there are many excellent examples of ancient and modern domestic work, in addition to mediæval remains. Upon the present occasion, however, the visit assumed an archæological character, whereof the chief interest lay in the well-known Cowdray House. Although remains of an early castle of the Bohuns are traceable, the existing house, now in a ruined state, may be said to have been one of the greatest XVIth century English mansions. Built about 1530 by Sir William Fitzwilliam, this house was laid out on a generous scale, with numerous large and lofty apartments. Some idea of the magnificence of the place may be gained from the great width and height of the windows, some of which have as many as five transomes, and that richness of detail was generally to be found throughout the work is evidenced by the fan-vaulting of the porch, the carvings, and other decorative features. Elizabeth stayed in the house, Edward VI. visited it, and troops were stationed within its walls at various times. Towards the end of the XVIIIth century a remarkable fate overtook the place. Fire broke out and destroyed all but the heavy stone walls, and the owner at that period was drowned in the Rhine within a few days of the catastrophe.

Other places in Midhurst visited by the party were the church, the Grammar School, founded in 1672, and subsequently the institution where Richard Cobden received part of his education, and some old cottages.

Later the church at Easebourne was inspected, together with the remains of a monastery, now used as a granary, and finally several old village cottages. Time prevented an extension of the excursion to Woolbeding, where a charming village church, interesting dwellings, and magnificent trees are to be seen.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday, at the County Hall, Spring-gardens, S.W., Mr. E. A. Cornwall, Chairman, presiding.

Additions to, and Withdrawals from, the Selected List of Contractors.—On the recommendation of the Education Committee, it was agreed:—

"(*a*) That, subject to the conditions named below, the names of the undermentioned firms be added to the list of contractors selected to be invited to tender for the erection of schools and additions to schools:—Enness Bros., Erith, Kent; J. Shelbourne & Co., 70, Fenchurch-street, E.C. (for works to the value of 10,000*l.*); S. N. Soole & Son, Sheen-road, Richmond (for works to the value of 15,000*l.*); Waring White Building Company, Ltd., 25, Dover-street, Piccadilly.

(*b*) That, subject to the conditions named below, the names of the undermentioned firms be added to the list of contractors selected to be invited to tender for heating works:—Beeson & Sons, Rickmansworth, Herts (for works to the value of 1,000*l.*); F. W Brock, 287, Shirland-road, Paddington (for works to the value of 500*l.*); Wm. Truswell & Son (on probation until they have completed contract now in hand for heating Shap-street School, Haggerston).

(*c*) That the name of Beeson & Son, Rickmansworth, Herts, be added to the list of contractors selected to be invited to tender for sanitary and drainage works to the value of 1,000*l.*

(*d*) That the names of the undermentioned contractors be reinstated on the list of contractors selected to be invited to tender for cleaning and painting schools:—Enness Bros., Erith, Kent; Whitehead & Co., Portland-place North, Clapham-road.

(*e*) That the name of S. N. Soole & Son, of Sheen-road, Richmond, be added to the list of contractors selected to be invited to tender for structural alterations, repairs to school buildings, etc.

(*f*) That the name of James Banks, of 2, Howard's-lane, Putney, be added on probation for one year to the list of contractors selected to be invited to tender for repairs to buildings, etc., and that he be invited to tender for small contracts only.

(*g*) That the name of the Cadogan Ironworks Company, of Stanley Bridge, King's-road, Chelsea, be added to the list of contractors selected to be invited to tender for providing and fixing iron staircases.

(*h*) That the name of Messrs. W. Penn & Co. be retained on probation for one year on the list of contractors selected to be invited to tender for cleaning and repairing blinds.

(*i*) That the names of the undermentioned firms be removed from the lists of contractors selected to tender for works at London County Council schools:—Beeson & Sons, Rickmansworth, Herts (structural alterations and repairs); Galbraith Bros. (painting and cleaning); F. Gough & Co. (painting and cleaning); London School Furniture Company (partitions); Mackenzie & Moncur, Ltd.; Mather & Platt (heating works); H. J. Williams (cleaning and painting); J. H. Heathman & Co.; S. Polden, Camden Works, Woodstock-road, Shepherd's Bush; Sanitary Lead-lining and Pipe-bending Company.

(*j*) That the applications of the undermentioned contractors to be placed on the list of contractors selected to tender for the undermentioned works at London County Council schools be declined:—James Doe & Son, 2, Macroom-road, Paddington (cleaning and repairing blinds); Mark Duffield & Sons, Ltd., High-street, Slough (supplying and fixing heating apparatus); C. E. Gibbings & Co., 137, Albany-street, N.W. (structural alterations, repairs to buildings, cleaning and painting); Palowkar & Sons, 90 and 91, Queen-street, Cheapside (supplying and fixing gas mains and fittings); W. Stringer, 27, St. James'-street, Islington (supply of locks, etc.); C. Walker, 59, Victoria-road, Kentish Town (repairs to buildings)."

The Works Committee.—The Works Committee brought up statements of works completed during the half-year ended March 31, 1905. In statement I. are included the accounts for works, completed in the half-year, in respect of which complete specifications and bills of quantities have been prepared. The net result of execution of the works included in the statement is a balance of cost of 5,548*l.* 14s. 9d., or 5·28 per cent. below the total of the final certificates. Eight out of nine works have been carried out at a cost below final certificate. As in previous statements, the total of the accepted estimates exceeds the total of the final certicates. In this case the total of the accepted estimates (109,932*l.* 12s. 2d.) exceeds that of the final certificates (105,084*l.* 18s. 4d.) by 4,847*l.* 13s. 10d. The cost of erection of the Old Kent-road fire station has exceeded the final certificate. The fire brigade remained in possession of the site during the erection of the station, and the difficulty of carrying out the work under these conditions was not fully appreciated at the time of its acceptance. Some sewers, the existence of which was not known until they were encountered, also complicated the execution of the work. The extra cost incurred under these heads has partly been met by an allowance in the final certificate, which, however, leaves an adverse balance of 147*l.* 12s. 3d. In statement II. is included the cost of the erection of six cottages on the Totterdown-fields estate, which were erected at the desire of the Housing Committee on the basis of actual cost, as time did not admit of the preparation of bills of quantities, etc., it being desirable to expedite the matter with a view to the line of frontage being established in such a manner as to allow of the widening of Church-lane at a later date. Statement III. shows the results of the execution of jobbing works during the year 1903-4 and part of the year 1904-5. The cost of works executed in the year 1903-4 is 5,063*l.* 19s. 3d., or 9·3 per cent. below schedule value, and the balance of cost below schedule value in the case of the works executed in 1904-5 and now reported is 2,281*l.* 3s. 1d., or 14·8 per cent. The Committee, in their general observations, remark that:—"The total cost of the works included in the statements now presented does not represent the turnover of the department, because much of the expenditure on these works occurred previous to the half-year in question, while, on the other hand, much of the expenditure during the six months was upon works which are still unfinished. The approximate expenditure on works executed by the department during the half-year was 402,300*l.*, as compared with 252,700*l.* in the previous half year. The number of estimated works referred to us for execution and not yet included in the half-yearly statements of completed works submitted to the Council is forty-five, representing an estimated expenditure of approximately 1,316,450*l.* In addition, works to the value of 61,880*l.* have been accepted by us, but are not yet referred to us by the Council for execution. As required by the standing order, we report that, so far as can at present be foreseen, the only case in which the accepted estimate for any work in progress will be exceeded is the erection of additions at Shoreditch technical institute."

Waterloo Bridge—Reinstatement of Gas Lamps.—The Bridges Committee reported as follows:—

"The Council on June 28, 1904, referred it to us 'to report immediately as to the removal of the original bronze lamp standards on Waterloo Bridge, and the substitution therefor of lamp standards wholly out of character with the bridge, and of particularly feeble design, and as to the possibility of the reinstatement of the original lamp standards.' We have very carefully considered the advisability of adopting the course indicated in this reference, and in connexion therewith we have had the advantage of the advice of Mr. George Frampton, R.A., and Sir William Richmond, R.A., and also of Mr. E. J. Horniman, a member of the Council. The old lamps, which were removed, are still in existence, and practically intact, and we have had before us models showing an arrangement by which they can be substituted for the present electric light standards, and adapted for the use of incandescent gas light. We have, in the circumstances, decided to recommend the Council to take this course. The result will, in our opinion, be more artistic than that obtained by the present arrangement, and it will, moreover, be considerably more economical, as the cost of maintenance will be materially reduced. Half of the electric light standards are lighted by current supplied by the Charing Cross, West-end, and City Electric Supply Company in consideration of the way-leave granted to that company to lay mains over the bridge, and the other half of the lamps are supplied with current from the Council's generating station on the Victoria-embankment at an annual estimated cost of 23*l.* This does not take into account the cost of the supply of the current from the Council's generating station, which, as regards actual work and material, amounts to about 100*l.* a year. If the old standards be replaced and fitted with two incandescent burners each, the annual cost of maintenance will be about 95*l.*, while the Electric Supply Company will be prepared to pay as way-leave a rent of 65*l.* a year, thus reducing the annual cost to 30*l.* a year. It will thus be seen that the reversion to the old standards, besides having the effect of bringing the lighting arrangements into keeping with the structure of the bridge, will result in a considerable annual saving of cost, while the light will be equally good. The cost of making the necessary alterations in the first instance will be about 650*l.*"

The Committee recommended accordingly, but the paragraph was not considered this week.

Proposed New Thames Tunnel.—The Bridges Committee recommended that authority be sought in the next Session of Parliament to enable the Council to construct a footway tunnel to connect North and South Woolwich, at an estimated cost of

145,000*l.* Lord Welby, on behalf of the Finance Committee, opposed the proposal, on the ground of the Council's present heavy commitments. On a division an amendment to refer the matter back was carried by fifty-one votes to twenty-four.

Traffic Commission Report.—Mr. Baker, the Chairman of the Highways Committee, announced that his Committee would, on Thursday, take into consideration the report of the London Traffic Commission, and, in due course, bring up a report to the Council.

Trams Across the Bridges.—Mr. Baker also announced that the House of Lords had rejected the Council's Bill for trams across Westminster and Blackfriars bridges and along the embankment by sixty-four votes to thirty-one.

The Council, having transacted other business, adjourned.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses :—

Erection of a Boundary Fence, Kidderpore-avenue and Ferncroft-avenue, Hampstead.

Hampstead.—That the resolution reported to the Council on January 24, 1905, consenting to the erection of a boundary fence at less than the prescribed distance from the centre of the roadway on the eastern side of a footpath leading from Kidderpore-avenue to Ferncroft-avenue, Hampstead, be rescinded.—Agreed.

Lines of Frontage and Projections.

Rotherhithe.—One-story shops upon part of the forecourts of Nos. 43 and 45, Lower-road, Rotherhithe (Messrs. Weston & Sons for Mr. W. J. Pavely).—Consent.

Kensington, North.—Seven houses with bay windows on the western side of a street leading out of the south side of St. Quintin-avenue, Kensington, and the erection to the southernmost house of a bay window and pent roof (Messrs. Trant Brown & Humphreys).—Consent.

Holborn.—Additions to an iron and glass shelter in front of the main entrance to the Hotel Russell, Russell-square, Holborn (Messrs. J. W. Singer & Sons, Ltd., for the Fredericks Hotel Co., Ltd.).—Consent.

Wandsworth.—Buildings on a site abutting upon the west side of Streatham-hill and south side of Drewstead-road, Wandsworth (Messrs. Taylor & Sons for Messrs. Meech & Goodall).—Consent.

St. Pancras, North.—A building with a one-story portion in front, upon the site of No. 73, Highgate-road, St. Pancras (Mr. S. P. Rees for Mr. W. S. Kydd).—Consent.

Camberwell, North.—The retention of five lantern lights on the forecourt of the public baths and washhouses, Old Kent-road, Camberwell (Mr. E. H. Payne for the Council of the Metropolitan Borough of Camberwell).—Consent.

Camberwell, North.—A projecting illuminated clock and case at the public baths and washhouses, Old Kent-road, Camberwell, to front upon Marlborough-road (Mr. E. H. Payne for the Council of the Metropolitan Borough of Camberwell).—Consent.

Marylebone, West.—A studio and external fireproof staircase at No. 2, Lennard-place, St. John's-wood (Messrs. Blow & Billery for Mr. H. Spence).—Consent.

Norwood.—The retention of iron and glass porches at Nos. 162 and 164, Rosendale-road, West Dulwich (Mr. A. R. Vizard for Mr. J. Rutter).—Consent.

Strand.—A projecting lamp at No. 64, Suffolk-street, Strand (Messrs. Perry & Co. for the Royal Society of British Artists).—Consent.

Woolwich.—A house on a site abutting upon the southern side of Dallin-road and western side of a footpath leading from Dallin-road to Shrewsbury-lane, Woolwich (Mr. J. Bull for Mr. J. R. Turner).—Consent.

Hammersmith.—An addition at the rear of No. 55, Abdale-road, Hammersmith, to abut upon Ellerslie-road (Mr. G. W. Clarke for Mr. G. Smith).—Refused.

Kensington, North.—An addition and an iron and glass covered way in front of No. 24, Lansdown-road, Notting-hill, Kensington (Messrs. Preston & Perkin for Mr. F. F. Begg).—Refused.

Width of Way.

Kensington, North.—A club and institute building on a site abutting upon the eastern and southern sides of Blechynden-mews, Blechynden-street, Kensington (Mr. W. Wadman for the Committee of the Fawcett Liberal Club).—Consent.

Rotherhithe.—A one-story building at Dinorwic Wharf, Rotherhithe-street, Rotherhithe (Mr. A. H. Lainson for Mr. J. J. Greenwood).—Refused.

Width of Way and Lines of Frontage.

Southwark, West.†—An iron and glass shelter in the passageway on the north-eastern side of the Surrey Theatre, Blackfriars-road, Southwark (Messrs. Kirk & Kirk for Mr. T. West).—Refused.

Fulham.—A boundary wall at No. 6, Portland-street, North End-road, Fulham (The Excel Meat Company).—Refused.

Marylebone, West.—An addition to No. 1, Berkeley-mews, Seymour-street, St. Marylebone (Mr. G. Chappelow for Mr. A. Lichtenstadt).—Refused.

Line of Frontage and Formation of Street.

Lewisham.—Houses with shops on the eastern side of Springbank-road, Hither Green, between Nos. 11 and 53; and that an order be issued to Mr. P. Roche, sanctioning the formation or laying out of a new street, and in connexion therewith the erection of a bakehouse and stabling on a site at the rear of such houses with shops).—Consent.

Lines of Frontage and Space at Rear.

St. George, Hanover-square.—An addition to "Berkeley House," on the southern side of Hayhill, St. George, Hanover-square, to abut upon Berkeley-street (Mr. W. Wonnacott for Mr. A. H. Young).—Consent.

Lines of Frontage and Construction.

Hammersmith.—An addition to a workshop at the rear of the "Red Cow" public-house, No. 157, Hammersmith-road, Hammersmith, to abut upon Colet-gardens (Messrs. Bull & Bull for the Ace Motor Syndicate, Limited).—Consent.

Width of Way and Space at Rear.

Holborn.—Buildings on the site of Nos. 8 to 14, Wild-court, Holborn (Mr. H. L. Florence for the trustees of the United Grand Lodge of England).—Consent.

Width of Way and Construction.

Battersea.—A workshop in a yard at the rear of No. 34, Surrey-lane, Battersea (Mr. J. Ritchie).—Refused.

Formation of Streets.

Wandsworth.—That an order be issued to Mr. A. Wellings sanctioning the formation or laying out of a new street for carriage traffic, to lead from Tooting Bec-road to Dafforne-road, Wandsworth.—Consent.

Wandsworth.—That an order be issued to Mr. E. B. I'Anson, sanctioning the formation or laying out of a new street for carriage traffic to lead from Sunnyhill-road to Valley-road, Streatham (for Messrs. B. D. & L. D. Fisher).—Consent.

Space at Rear.

Southwark, West.—A deviation from the plans approved for the erection of a cart-shed, with four stories over, on the east side of Gravel-lane, Southwark, to extend over part of the open space at the rear of a stable building on the north side of Orange-street, so far as relates to an increase in the height of a portion of the stable building (Mr. E. Carritt for Mr. J. Sainsbury).—Consent

Alterations to Building.

Islington, North.—An addition at the rear of No. 542, Holloway-road, Islington (Mr. R. Midworth for Mr. H. J. Bee).—Refused.

Buildings for the Supply of Electricity.

Norwood.—A steel flue at the generating station Bengeworth-road, Norwood (Messrs. Kincaid, Waller, Manville, & Dawson for the South London Electricity Supply Corporation).—Consent.

Means of Escape from the Top of High Buildings.

Strand.—Certain deviations from the drawings approved in respect of the means of escape in case of fire proposed to be provided from the fifth (top) and fourth stories of Nos. 1 and 1A, Cockspur-street, and Nos. 18 and 19, Pall Mall East, Strand (Mr. H. Tanner, junr.).—Consent.

Working-class Dwellings.

Greenwich.—A dwelling-house to be inhabited by persons of the working-class and proposed to be erected, not abutting upon a street, on a site at the rear of No. 92, The Stowage, Deptford (Mr. J. Webster for Messrs. May & Roberts).—Consent.

Means of Escape at top of High Buildings, Cubical Extent, etc.

Strand.—Means of escape in case of fire proposed to be provided in pursuance of section 63 of the Act, on the fifth (top) story of a new building for the *Morning Post* to abut upon Aldwych, Wellington-street, Exeter-street, Strand, the upper surface of the floor of which story is above 60 ft. from the street level, for the persons dwelling or employed therein (Messrs. Mewès & Davis).—Consent.

Strand.—A new building for the *Morning Post*, to abut upon Aldwych, Wellington-street, and Exeter-street, Strand, with a division to exceed in extent 250,000 cubic ft. (Messrs. Mewès & Davis).—Consent.

The recommendation marked † is contrary to the views of the local authority.

ARCHITECTURAL SOCIETIES.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS. — The annual Report of the Society for 1904-5 states that the numbers now stand as follows :—Three hon. members, thirty-seven Fellows, forty-eight Associates, fourteen students, eighteen lay members—total 120, as compared with 117 last year. This is the highest number on the Society's records. Owing to the transfer of students to the list of Associates the number of the former has diminished, and the Council trusts that principals will point out to their pupils the importance of joining the Society as early as possible. Two prizes of books to the value of 2*l.* 12s. 6d. each were offered for the best common-place book kept during the year in each of the following subjects :—(1) Architectural Practice, (2) Surveying Practice. Only one competitor submitted work, the quality of which did not warrant an award being made. A prize of books to the value of 3*l.* 3s. was offered for the best epitome of the following book, "Building Estates" (Maitland). No work was submitted in response to this offer. A prize of 5*l.* 5s. for the best selection of measured drawings was awarded to Mr. J. M. Jenkinson. "His drawings not only give evidence of great industry, but their character is excellent; the measured scale drawings done on the buildings show that he has gone about the work with understanding, although in some cases the work has been somewhat hurried. The finished drawings exhibit care and accuracy as well as power and feeling." The offer of a prize of books to the value of 2*l.* 2s. for the best description, illustrated by sketches, of the places visited at the annual or any of the Saturday excursions arranged, did not meet with any response. Books to the value of 2*l.* 12s. 6d. were offered by the Society to students attending the classes of the Society whose work, in the opinion of the Council, deserves recognition. These were awarded to the following students, whose work in the Designing Class showed progress and industry :—One guinea each to Mr. G. R. Bower and Mr. J. R. Truelove and half-a-guinea to Mr. D. H. Loukes. In regard to the question of Building By-laws, the Council wishes to put on record its concurrence with the opinions which have recently been so strongly expressed all over the kingdom, that many of the by-laws are too rigid, and some not only useless but harmful, as they rather tend to check enterprise than to suppress insanitary and unsafe building, which should be the principal objects of official restriction, and in which we are all most heartily in accord with the authorities. They hope their local authorities will suggest a code which will not be open to the criticisms so often rightly made in other places, and if this be done the Society would assure them of its loyal support.

Books.

Wien am Anfang des XX Jahrhunderts. Edited by PAUL KORTZ. Gerlach & Wiedling.

"VIENNA at the Beginning of the XXth Century" is the title of a book which is as comprehensive in detail as it is excellent in arrangement. It purports to be a guide to Vienna in matters technical and artistic, and fully accomplishes this object.

The work was undertaken by the Austrian Institute of Engineers and Architects, as it was felt that all those interested in the planning and building of cities would welcome a reliable book of reference recording the constructional development and architectural features of the beautiful Austrian capital.

From the high position it holds in public estimation, the Institute was able to secure the services of specialists in each branch of the subject, and the work consists of a series of articles all signed by men who are qualified to speak with authority. These articles are published in two volumes.

The first volume, which is under review, includes the general characteristics of the town and the engineering works. It contains 388 pages of printed matter, with 397 illustrations and seventeen plates. The second volume, which will appear at the end of the year, will deal with the development of architecture in Vienna during the last fifty years. Judging from its published list of contents, it promises to be compiled with the same care

that has been bestowed on the first volume, and hence it cannot fail to arouse the interest of the architectural reader.

Since the co-operation of architects and engineers is fortunately daily becoming more general, it follows that a hard-and-fast line cannot always be drawn between the work proper to each of their professions; consequently even the first volume contains much matter of value to the architect.

It is divided into two parts. The first part deals with the topography, hydrography, meteorology, and geology of the town and its neighbourhood, and the letterpress is supplemented by maps beautifully reproduced. Building materials, natural and artificial, form the subject of an interesting article in which is traced the influence of material on style. Apparently stone is not largely used except for engineering works; dwelling-houses being chiefly built of brick. The clay in the neighbourhood is of great tenacity and purity, and the Wienberger Brick Co. gives a yearly output of over 200 million bricks, which is a quantity far in excess of that of any other continental factory. Concrete and glass, in conjunction with iron, have noticeably come to the front, and result in a flat treatment, the modern Viennese style, which contrasts favourably with the heavy columnar and ornate style that flourished a few years ago. At the close of each section is given a list of the principal buildings constructed of the particular material under discussion.

The historical development of the town from Roman times to the present day is outlined in a chapter thirty pages in length, and the methods traced by which improvements were effected. In 1857, when an Imperial edict abolished the inner fortifications, the town was remodelled, and the fine Ring Strasse, 150 ft. wide, laid out on the site of the ramparts. Its rows of trees and monuments, its noble buildings, squares and gardens, combine to make it the pride of modern Vienna. At the same time building was encouraged and a great impetus given to the trade by thirty years' exemption from taxation being granted to newly-erected buildings. In 1893, the municipality sanctioned an admirable plan which has since regulated building in Vienna. This scheme includes four zones, in each of which the class of building that may be erected is specified, and the height regulated to which the building may rise. A plan of the town is reproduced which, by different colours, shows the various heights to which buildings are limited.

In the same year, in order to compass the widening of narrow streets, over 1,200 houses were marked down and their owners promised exemption from taxation for eighteen years, provided the houses were rebuilt on a new frontage line within a given time. Sixty per cent. of the houses were, in consequence, set back and the circulation in congested quarters was thereby much improved.

The scheme for enlarging the town shows an endeavour to avoid the mechanical uniformity of former extensions and to provide the greatest amount of individuality compatible with a harmonious whole. In the architectural character of flats and business premises especially a great change for the better has been ecected. Formerly these classes of buildings affected the palatial style, and sought to appear other than they were; but their meagre proportions and inferior material lent no colour to the deception. Now the lack of taste and of object in such a proceeding is recognised, and buildings aim chiefly at expressing their purpose.

The second part of Volume I. deals with engineering works, and gives historical, technical, constructional, and financial data for all works relating to traffic, postal arrangements, street conservancy, drainage, water supply, lighting, open spaces, etc. There is hardly a page of letterpress that is not illustrated by some plan, section, or photogravure of the methods in use for providing the town with the requirements of modern civilisation.

At the conclusion of each article is added a list of authorities consulted, so that any point may be readily referred to and studied at greater length if desired.

A History of English Furniture. By PERCY MACQUOID, R.I. Laurence & Bullen. 1904. Vol. I.

THE first volume of this sumptuously illustrated work is now completed. The volume brings to an end the first part of the work entitled by the author the "Age of Oak." The period covers the earliest existing furniture of this country from Gothic to Jacobean times; the next volume will deal with walnut furniture, which came into vogue with the Restoration. The volume before us shows the most interesting examples of that solid and enduring type of carpenters' furniture which was characteristic of the XVth and XVIth centuries. The pity is that so little of an earlier time survives; what there is excites our admiration by its quaintness of form and the liveliness of its decoration. The later forms of furniture shown are no doubt more comfortable and more shapely, but they lack the simplicity and directness of construction which charm in the earlier examples. The first three chapters have already been reviewed in these pages, the fourth deals with oak tables, dressers, and chests, with interesting sidelight upon the domestic history of the period; views are given of Nonsuch, besides illustrations of furniture from that palace. One of the most beautiful examples from Nonsuch is a marqueterie chest, the property of Sir Aston Webb. Chapter V. deals with oak chairs, most interesting among the illustrations of which is an oak grandfather chair, the property of the Duke of Leeds. After the chairs some beds, with their heavy and sumptuous hangings, are shown. It is interesting to notice that as far back as 1600 the oak for wainscot panelling was not of English growth, but imported from Denmark. Chapter VI. shows fine examples of Court cupboards and chests with drawers in them, some are very richly inlaid with materials other than wood. The best examples of upholstered furniture are the property of Lord Sackville, of which many illustrations are given. Unfortunately, very little of this class of work is left, owing to its perishable nature and to wholesale destruction during the civil war in the middle of the XVIIth century.

Industrie Ardoisière—Carrières et Mines de Maine-et-Loire. Par G. LARIVIERE. London: C. H. Broodbank.

FEW districts in France are more plentifully endowed with mineral resources than the Department of Maine-et-Loire. The minerals occurring in the Department include various materials suitable for the construction and ornamentation of buildings. Among these products are slate, hard and soft stone, limestone, and clay, the two last-mentioned being largely employed in the manufacture of lime, cement, and brick. Further, the minerals of the Department comprise coal, iron ore, and arsenical, copper, and auriferous pyrites. The study of these mineral riches, and of the industries to which they have given rise, is of much interest, and if the subject were treated in full detail it would amply suffice to fill a volume of far more portly dimensions than the book written by M. Larivière. In this publication the author confines attention chiefly to a descriptive account of the slate industry, which is of particular importance to the Department of Maine-et-Loire, and, we may add, to the author himself as a member of the Commission des Ardoisières d'Angers. This association, formed in January, 1827, as a syndicate for the sale of the products of more than fifteen companies engaged in working the slate beds of Angers, has been extended in scope from time to time, and in 1891 effected the complete amalgamation of all the companies previously associated with the organisation. Some idea of the extent of the industry may be formed by the statement that the slate production of Maine-et-Loire is not less than 360,000*l.* per annum, of which more than two-thirds is yielded by the quarries and mines of Angers.

As the depth of the formation in the vicinity of Angers reaches nearly 800 metres, the workings are of considerable depth, being conducted from the surface in some places and by mining in others. Briefly stated the mineral is worked by the following methods:—

(1) By open excavation in vertical benches, adopted from the earliest times. (2) By subterranean working in vertical benches (Méthode Le Chatelier), first applied in 1832, but less used than formerly. (3) By removing the material from the under side of a vein (Méthode Blavier), first applied in 1877, and permitting the working of a layer of any desired depth by successive laminæ. (4) By a combination of the two preceding methods. Each system has its peculiar advantages and disadvantages, and is selected or rejected according to the conditions of the vein which it is proposed to work. From the descriptions and illustrations here given the works devoted to these industries appear to be well-equipped with modern machinery. The slate works have been supplemented by the addition of an enamelling workshop, where slate is finished in imitation of faïence and marble and in various colours, as required for the fittings and decoration of buildings and other structures. The wire works are said to have amply attained the primary object for which they were founded, namely, the manufacture of wire ropes of such quality as to minimise the number of accidents in the quarries and mines of the Commission, owing to the breaking of cables employed for raising slate from the workings. In proof of this statement the author records the fact that from the establishment of the works up to 1903, only one fatal accident has been occasioned by rupture of the cables.

Altogether this is a most interesting volume, and, although published in the interests of a commercial undertaking, it makes no attempt to bring the business aspect of the subject to the front in the manner too often adopted by the writers of books which are put forward as independent scientific works.

Stained-Glass Work: a Textbook for Students and Workers in Glass. By C. W. WHALL. London: John Hogg.

THIS little volume, which forms the fourth of the series of technical handbooks edited by Professor Lethaby, is unique among modern works on stained glass in being the work of an artist who is also a thorough craftsman. Mr. Whall was among the first to realise that good stained glass cannot be produced by the factory system, on which too much stained glass is produced at the present day—by the separation, namely, not merely of designer and executant, but of designer, cartoonist, figure-draughtsman, ornament-draughtsman, "cut-liner," glass-cutter, tracer, flesh-painter, drapery-painter, border-painter, glazier (this is no exaggeration), each working only at his own particular portion of the process, with no knowledge of the rest. "Since the Middle Ages," says Mr. Whall, "the craft has never been taught as a whole"; so the author, and the little group of workers of whom he is one, have taken off their coats and learnt the craft as a whole, and this book may be taken as the result of their experience.

Mr. Whall is careful to state at the outset his belief that no craft can be taught from books alone, but within these limits the technical manual contained in Part I. is exhaustive and extremely clear. Most workers in stained glass will find useful hints in it, and those who do not will enjoy it as a chat about their craft by one who is such an enthusiastic lover of it. For love of the craft is the characteristic of the book from end to end—illuminating the commonest details, so that there is not a dull page anywhere, and rising to a height in the second part of the work, especially in the really noble concluding chapter, called "A String of Beads."

It is this, the second, part of the work in which Mr. Whall, leaving from time to time technical details, treats of design and the broad principles which govern all art, which will appeal most to the general reader. The chapter on "Colour" is extremely well done, and will be read with enjoyment by all artists or lovers of art. We do not know that the subject of colour composition has ever been better treated, a fact which seems to bear out the author's plea that the finest training for a colourist is a thorough familiarity with the possibilities of stained glass.

At the same time, however, he is careful to urge on the student the continual study of, and contact with, nature. Indeed, the whole purport of his teaching for the student is that Nature, his material, and a knowledge of what has been done will tell him what he ought to do. Again and again in the concluding chapters does Mr. Whall inculcate the great lesson of humility in the artist—humility in the expression of a thought, humility before the architecture he may have to adorn, and, lastly, humility in considering the wishes of his clients.

"You will get many requests," he says, "which seem to you unreasonable and impossible of carrying out—some no doubt are so; but at least *consider them* . . . treat the whole thing as 'raw material' and all surrounding questions as factors in one general problem."

It is a lesson much needed in these days, and one the neglect of which does more almost than anything else to throw the would-be patron of the crafts into the hands of the manufacturer.

Thanks to the efforts of Mr. Whall and others, there is enough trained talent in the country to-day, if we would only use it, to raise stained glass in a few years to something like its old level. The situation is very much in the hands of architects and clergymen, and one of the uses of this book ought to be to give those of them who can be induced to read it such an insight into the real nature and conditions of the art as to cure them for ever of trying to get what they want from "trade" firms.

Horsham and St. Leonards Forest. By W. GODLIFFE, M.A. London: The Homeland Association. 1905.

THIS is an excellent guide to a very interesting town standing in the picturesque district known as the Weald of Sussex. Additional attention has been lately drawn to it by the selection of a site near the town for the new buildings of Christ's Hospital, a detailed description of which is given in a chapter at the end of the book. Horsham possesses an interesting church with a fine east window and several monuments, and in its immediate neighbourhood are many quaint old houses, particularly those forming the "Causeway." Another house roofed with Horsham stone stands near the station, and of it a good photograph is given. A chapter is devoted to a description of St. Leonards Forest, and the four following deal with the villages lying within a radius of about five miles. Besides numerous excellent photographic illustrations, a map of the district is given to the useful scale of an inch to the mile.

The Country Gentleman's Estate Book, 1905. Edited by W. BROOMHALL. Country Gentleman's Association, Ltd., 2, Waterloo-place, London.

THE publication lives up to its reputation; the capacity of its editor is well proved by the fact that a considerable space is given to the questions of Rural Housing and Cheap Country Cottages, subjects of great importance and interest at the present time. The contents are as varied and useful as ever, and indicate that the book should be in the hands of every land agent.

ANCIENT EARTHWORKS AND FORTIFIED ENCLOSURES.

THE Report of the Committee of Archæological Societies in union with the Society of Antiquaries, presented to the Congress of Archæological Societies, under date July 5, urges the secretaries of local archæological societies to obtain schedules of the ancient earthworks and defensive enclosures in their respective districts, and to publish them in their *Transactions*, or as a separate pamphlet, hoping by these means to increase public interest in these priceless relics of our country's story. It is suggested that reprints of such schedules, accompanied, so far as possible, by accurate plans and sections of works of each class, should be distributed not only to landowners and occupiers, but also amongst the county, borough, rural, urban and district councils, whose members may be able to use influence to prevent the destruction or mutilation which from time to time threatens the remains of so many early fortresses, camps, and strongholds throughout the land.

It is observed that while in such schedules and plans no great amount of detail can be expected, it is desirable to adopt an exact method of delineation of the features, with information as to the levels and other details, not only of the artificial work, but of the immediately surrounding land. The Committee hopes shortly to issue specimen plans and sections to serve as models for similar work in the pages of archæological societies' *Transactions*.

The earthworks of the following counties are in hand, both as to schedules and plans:—Essex, Lincolnshire, Oxfordshire, Warwickshire, Staffordshire, and part of Westmorland and Lancashire.

The editors of the "Victoria County Histories" have been in close touch with the Committee, and it is pleasant to state that, in addition to Essex and Bedfordshire remains, referred to in the Report of last year, those of Warwickshire have been recorded (by Mr. Willoughby Gardner) in the published volumes of the series. The Rev. E. A. Downman is contributing to the "Victoria History" plans of works in Northamptonshire, Dr. Cox is writing on those in Derbyshire, the remains in Berkshire are being described by Mr. Harold Peake, and Durham and Sussex are ready for the press. The Essex Archæological Society has issued a preliminary list of homestead moats, asking for information to complete the schedule. The Wiltshire Archæological and Natural History Society has secured about fifty plans of the county earthworks, drawn to scale by the Rev. E. A. Downman, and it is hoped will issue a complete schedule of the remains in Wiltshire. The Cambridge Antiquarian Society hopes shortly to publish an account of the works in that county with plans, by Mr. Harding; and Mr. G. G. T. Treherne, a member of the Cambrian Archæological Association, is preparing fully detailed plans and sections of ten camps in the district of Carmarthenshire, known as Laugharnshire.

It is added that tumuli, barrows, and ancient boundary-banks and dykes deserve attention at the hands of those engaged in recording the earthworks of a county, and it is suggested that a list should be compiled. This is the more necessary as such remains disappear with even greater rapidity than earthwork camps and strongholds. In this connexion it may be noticed that a remarkably full list of such works in Derbyshire will appear in the "Victoria History" of that county, 153 examples being recorded.

Correspondence.

"THE VENTILATION OF TUBULAR RAILWAYS."

SIR,—Thanks for your notice and comments in the *Builder* of July 15 in reference to my pamphlet on the above subject. In concluding the paragraph, you say:—"The general idea of the scheme is good, but we think as propounded its effects would be limited to the stations, and that the bulk of the fresh air would be ejected without doing anything to improve the condition of the tunnels." My reply to this is that the passage of a train through a tunnel practically sweeps all air before it into the next station, as can be proved by standing near the edge of a platform, when you can feel the volume of air issuing from the tunnel before you can see or hear the approaching train. The stations are like large caverns for holding the foul air, and are likely to be worse than the tunnels, the same air that is driven down the line passing through all openings to up-line, and never being changed.

When it is taken into consideration that many of the lift shafts are from 60 ft. to 90 ft. deep and contain three lifts being worked every few minutes, the enormous amount of work that could be done under my scheme of ventilation can be realised, as at all the points where the foul air collects it could be pumped out. By this system the air of the whole length of railway would be changed several times a day; also with the opening into the tunnel of the staircase air shaft (as shown in drawing), the passage of a train through the tunnel would greatly assist the inlet of air by suction. Considering the great improvement that would be made without any hindrance to business and no great structural alterations, the outlay would prove a good investment to the companies concerned by the increase of traffic and popularity of this means of travel; the amount of business lost can be realised by inquiries among the travelling public. Many people have told me they would like to travel by these lines as they are so convenient, but cannot do so on account of the state of the air and the headache it produces.

R. J. RUSSELL.

THE JAPANESE ARMOUR EXHIBITION.

SIR,—May I be allowed to make one or two comments upon your note of the 15th instant, the writer of which dissents from the statement that the design of ancient Japanese arms, in spite of their beautiful decoration, is entirely subservient to practical purposes?

The particular points adduced in support of his views were (*a*) the absence of a knuckle-guard upon the swords; (*b*) the smallness of the "shoulder-butt" of the old muskets; and (*c*) the design of the large stirrups.

Beyond saying that the large iron stirrups would give some protection against edged weapons in the hands of a man on foot, one cannot advance definite reasons for their use. Most writers agree that Japanese horsemanship in the past has been poor, and Sir Rutherford Alcock, among some very unflattering observations on the subject, remarks that "it is vulgar and low to ride fast in Japan."

But upon the other two points there is more to be said. The butt of the Japanese matchlock was not meant to be put to the shoulder at all. Siebold states that the butt was held in the right hand, the ball of the thumb resting against the cheek, the butt being quite clear of the shoulder. Hokusai, in his "Mangwa," shows this method, and also shows that a rest for the muzzle was sometimes used. The weight of the piece, always considerable in proportion to the bore (about ½ in. in fowling-pieces), would prevent serious recoil.

As to the sword-hilts, it may be pointed out that the weapons for which they were in the first place designed were *two-handed* swords for use by men who wore armour. The disc guard amply met glancing blows that might slide down the blade, and the hands of the swordsman were protected by plate and chain mail; so that the absence of knuckle-guard, while adding to the freedom with which the weapon could be handled, would scarcely, if at all, increase the risk run by the user. It will be remembered that the *two-handed* swords of Europe never had closed hilts, but were restricted to cross-bars of various forms, with occasionally a "pas d'ane" in some shape: the reasons being just those suggested above as having kept the Japanese hilt so simple.

MATT. GARBUTT.

*** Of course one could not well work a two-handed sword with a closed hilt; but all those exhibited were one-handed swords of the usual size in modern arms. We do not think any European swordsman would approve of the form of the hilt, from a practical point of view. —ED.

Illustrations.

COMPETITION DESIGN FOR WESLEYAN HALL, WESTMINSTER.

WE give this week the perspective view and two plans of the design in the Second Competition by Mr. Jas. A. Swan, of Birmingham. The following are the author's notes in explanation of the design:—

"The estimated cost is 130,000*l*. The building is designed in the Renaissance style, with a simple treatment depending on mass rather than enrichment for effect. Each hall is so arranged as to be self-contained and capable of being used independently of the others. There are two tea-meeting halls in the basement, each to seat 500, with cloak-rooms.

The ground floor contains the entrance hall, four committee-rooms, small hall and library, vestries and four cloak-rooms, and lavatories. In a mezzanine are vestries and rooms for ladies and gentlemen of the chorus. The first floor contains the great hall, seating 1,390 on the floor. There is a reception-room and an orchestra retiring-room. Adjoining, on the principal front, right and left hand, are the reading-room and conference hall. On the west side are placed two blocks of offices, twenty-one for departmental purposes and sixteen "offices to let." On the second floor are galleries, accommodating 1,244, making a total seating accommodation in the great hall of 2,634.

On the upper floors are the librarian's and caretaker's rooms and the remainder of the offices. Twelve separate blocks of staircases are provided."

The ground plan, which we were not able to include, contains what we thought the best point in the whole plan, the grouping together of the four large committee-rooms adjoining two open areas, thus securing concentration and absolute quiet. We drew special attention to this in our general review of the competition designs.

NEW PREMISES, ST. JAMES'S-STREET.

THIS is the St. James's-street front of the premises erected from the designs of Mr. Leslie W. Green, of which the Bury-street front was illustrated in our issue of July 8.

The general description of the building, and the plan, were also given in that issue.

DESIGN FOR GRAMMAR SCHOOL.

THIS is the drawing by Mr. C. F. A. Voysey which is hung at the Royal Academy under the title "Proposed Grammar School, Lincoln."

We are not very much in favour of the quadrangle plan for a school, as we think it bad from a hygienic point of view; and we observe that in this case the plan has neither scale nor north point appended to it; an omission which seems to be of no consequence at the Royal Academy, but which we consider a rather serious one, especially in the case of such a building as a school, in which lighting is of the greatest importance.

As a piece of picturesque building, however, it is very charming; and we are glad to publish it as such.

SCULPTURE AT THE ROYAL ACADEMY.

WE give some further illustrations of sculpture at the Royal Academy, from photographs lent to us by the respective sculptors. That marked A is Miss E. M. Rope's bas-relief panel "Caritas," which hangs in the lecture-room. Near it hangs another decorative panel by Miss Rope, that marked D on the plate, and entitled "A Race Through the Surf." E, "A Sea-Chase," which is by the same artist, and part of the same series, is not, in fact, in the present exhibition, though we believe it was in a former one; but we give the two together as they are almost parts of the same subject. B is Mr. C. L. Hartwell's expressive head in marble, entitled "A Study." F is by a German sculptor, Herr Max Klein, of Berlin, the subject being "Hagar and Ishmael." It is a group on a small scale, and partially coloured. G is Miss Florence Steele's graceful silver rose-bowl, with a quotation from Herrick engraved round it in two bands. The centre subject, C, is Mr. Montford's large group entitled "The Flow," for Cardiff Town Hall.

We also give, separately, illustrations of two fine bronze busts by Mr. Alfred Drury; one an ideal bust, "The Spirit of the Night"; the other a study for a head of St. George for the monument at Clifton College.

COMPETITIONS.

PUBLIC ELEMENTARY SCHOOL, LEIGH, LANCASHIRE.—A short time since the Leigh Corporation invited fourteen architects to send in designs for their proposed elementary schools; and on the nomination of the President of the Royal Institute of British Architects, Mr. Mervyn Macartney was appointed assessor. He has now made his award as follows:—1st—Mr. J. C. Prestwich, of Leigh; 2nd—Mr. Thornley, of Wigan and Darwen; 3rd—Messrs. Potts, Son, and Hennings, of Manchester and Bolton. The estimated cost is 9,000*l.*, and the accommodation is for 900 children.

BRANCH LIBRARY, CATHAYS.—The design for the new branch library and reading-room which it is proposed to erect at Cathays has been accepted by the Cardiff Free Library Museum Building Committee on the recommendation of the assessor (Mr. Lanchester), to whom twenty sets of competitive designs were submitted. The successful competitors were Messrs Speir & Beavan, Queen-street, Cardiff. The building will be erected at the junction of Whitchurch-road, Fairoak-road, and Crwys-road, and it will be triangular in shape. The interior arrangements comprise a vestibule, hall, a lending library in the centre, and a reading-room on either side, together with a ladies' reading-room, librarian's apartments, etc. One of the reading-rooms will be set apart for children—a new feature in local free libraries. Both the reading-rooms on either side of the lending library will be 46 ft. long by 25 ft. wide, and will have a height of 25 ft. Supervision of the whole of the rooms will be obtained from the lending library, which will have cases for 12,000 volumes. The style of the architecture is of the Tudor period, and the building will be built of Newbridge stone, with Bath stone dressings and green slate roof. The estimated cost of the building and equipment is 4,400*l.*

BOOKS RECEIVED.

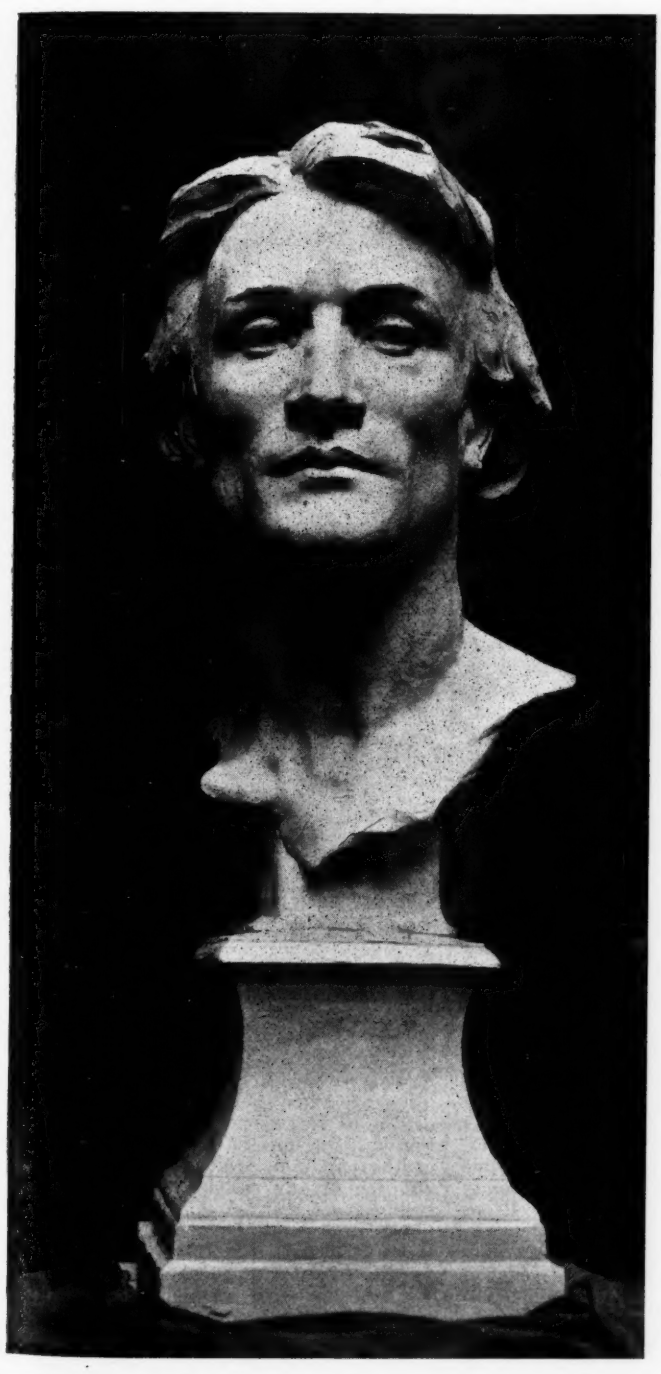
DRAWING FROM MODELS AND OBJECTS. By John Carroll. (Burns & Oates.)

WILLIAM HOGARTH. By G. Baldwin Brown, Professor of Fine Art in the University of Edinburgh. (The Walter Scott Publishing Company.)

COUNTRY COTTAGES: HOW TO BUILD, BUY, AND FIT THEM UP. By "Home Counties." (W. Heinemann. 6s.)

ARBITRATIONS. By the late Professor Banister Fletcher. Third edition; revised by Banister F. Fletcher and H. P. Fletcher. (B. T. Batsford.)

MODERN HOUSING IN TOWN AND COUNTRY. By James Cornes. (B. T. Batsford. 7s. 6d.)



Study for Head of Colossal Bronze Statue of St. George, Clifton College. Mr. Alfred Drury, A.R.A., Sculptor.

"Spirit of the Night": Bronze Head. Mr. Alfred Drury, A.R.A., Sculptor.

Sculpture at the Royal Academy.

TRADE CATALOGUES.

THE Phœnix Engineering Co., of Chard, send us a catalogue which deals principally with plant intended for road making, repairing, and cleansing. Several pages are devoted to tar, pitch, and bitumen boilers ranging in capacity from 10 gallons to 500 gallons. Road sweeping machines, road scrapers, and watering vans are also illustrated, as well as portable pumps of various types, and other requisites for contractors.

The Cincinnati Electrical Tool Co., of Cincinnati, U.S.A., send us a catalogue describing two useful tools. One is a portable electrical breast and hand-drill, a neatly-designed self-contained appliance, including a small motor operated by direct current, derived from any convenient source and transmitted through a flexible twin cable to the machine, the weight of which is only 20 lb. for the ½ in. size. The other tool is an electrical grinder, measuring 10¼ in. by 8 in. by 6 in. overall, and driven by a motor forming part of the machine.

We have received a copy of Messrs. Johnson Phillips's French electric cable list, giving particulars in that language, and on the metric system, of their standard vulcanised rubber cables.

We have received from Messrs. Johnson & Phillips, of Old Charlton, Kent, an abbreviated price-list of the electric lighting cables they manufacture. The list is made into a neat little booklet convenient for the pocket, and contains a series of blank pages of sectional paper which will be very useful for contractors to make notes on. The specifications of all the cables are clearly described, and the book will prove very useful to electricians.

The Eglinton Brass Foundry (Glasgow) send us a small catalogue of their brass rollers and groovers for forming the surface of pavement, and their name plates and brass lettering for pavement inscriptions.

The Falcon Brass Works send us a catalogue and price list of their goods kept in stock—including various types of waste-preventing cistern, taps, bath fittings, plumbers' fittings, traps, valve closets, etc. The "Flood" waste-preventer, which has been selected for the London County Council's workmen's dwellings, appears to be a very efficient and simple form of flushing cistern.

Messrs. F. Hattersley, Pickard, & Co., of Leeds, send us a circular illustrating the application of their patent screw fan to the ventilation of buildings and to the removal of steam and deleterious fumes from textile and other factories. This fan is of neat design, and is fitted with dust-proof bearings and an enclosed spindle. To provide for the different requirements of users, it can be supplied in any one of eleven distinct patterns of frame construction and with the arms in one of four arrangements, all these variations being illustrated in the circular. The fan is made suitably for driving by belt or for direct driving by steam engine or electric motor. Particulars will also be found of a hot-air apparatus with fan combined for warming and drying purposes.

Messrs. R. H. & J. Pearson send us their finely-illustrated catalogue of "Modern Fire-places" executed by them. For the most part these are very well designed, and quite above the average of grates and chimney-pieces shown in catalogues of this kind. Some of the designs are a little too fanciful and odd in detail, but the majority are in very good taste, and the catalogue as a whole is highly creditable to the firm.

Mr. Harrison Ainsworth (Hammersmith) sends us a sheet of illustrations and prices of his drawing instruments, also of his "Conklin" fountain pen, which claims the merit of filling automatically on the pressing of a lever. It is impossible, of course, to judge of drawing instruments by illustrations in a catalogue; all that we can say with certainty is that the prices seem very low.

The Kitchen Path Fitment Company (Sheffield) have sent us their catalogue of "artisan combination bath, sink, range, and wash-boiler fitments." The special feature is the arrangement of the bath, sink, and boiler in a small space, the bath being under the other fittings. In some of the fitments the bath is fitted with wheels, and has a swivelled outlet, on which it turns when the head is wheeled out; the boiler, heated by gas, is fixed over the foot of the bath, and the sink is fixed at one side. In another arrangement the bath is fixed, and the sink is hinged at the back. A more elaborate combination has the foot of the swivelled bath under a hinged portion of the draining board, and hot and cold taps are fitted to the bath, hot water being obtained from the wash-boiler. An arrangement in which the boiler is heated from the kitchen fire and automatically supplied with water from a small tank under the drainer of the sink, is, in many respects, the most convenient. The combinations are compact and ingenious, and cannot fail to be appreciated.

We have received from Mr. C. Clifford Potier a catalogue (printed in Germany) describing the asphalt roofing manufactured by "C. F. Beer Söhne, Cologne-on-Rhine." The material is an asphalted cardboard, and the methods of laying it are fully illustrated. For roofs nearly flat, square or triangular wood "rolls" are fixed to the boards about one metre from centre to centre, and the edges of the cardboard are turned up against these and covered by a separate capping piece. Full details of cardboard and zinc flashings are given.

Mr. Alexander Gilchrist (Glasgow) has sent us a small catalogue of the brasswork required by concrete-paving manufacturers, including toothed-rollers for indenting paving, straight and diagonal crimp rollers, joint rollers, gutter-groovers, name-plates, etc.

We have received from Messrs. Arthur L. Gibson & Co. a catalogue of the "Kinnear" patent steel rolling shutters, which were introduced into this country (apparently from America) four years ago. The peculiarity of the invention lies in the shape of the steel slats, the section having a concavo-convex central portion, and a forward and upward bend along the lower edge, and a backward and downward bend along the upper edge; the slats are simply connected by fitting these bends together, so that they form what may be termed a loose-welted joint, with sufficient play to allow the shutters to revolve. Malleable iron stops are fixed at the ends to prevent lateral movement of the slats, and to provide a good wearing surface. The illustrations show various methods of fixing the rollers, etc., and also a number of buildings in which the shutters have been used.

We have received from Mr. W. Baumann a four-page circular, containing some illustrations and descriptions of his spring-roller blinds, shutters, etc. These are made of wooden laths fixed to flexible galvanised-steel bands, and some of them are fitted with a projecting apparatus so that they can be pushed out to form Italian blinds. The text refers to illustrations which are not printed in the circular. The application of the same method of construction to screens is a useful innovation.

Mr. W. Duncan Tucker (South Tottenham) has sent us an interesting catalogue of eighty-eight pages, containing a large number of illustrations of plain and ornamental conservatories, etc., erected by him in various parts of the country. Some of the designs are so good that we are inclined to think that they were prepared by architects, but no architects' names are given. There are very few practical details in the catalogue, and the "specifications" are very vague. Attention may be drawn to the wood anti-drip roof-bars, with condensation channels ploughed in the two sides, but if this is a patent the patent is certainly being infringed by other horticultural builders.

We have received from Mr. Robert Adams a catalogue of 154 pages, containing hundreds of illustrations of builders' hardware. Door-springs and checks, gate hinges and fittings, fanlight and skylight openers (geared and otherwise), reversible window fittings, casement and other bolts, casement and sash fasteners, weather-bars for windows, metal casements, etc., are shown in considerable variety. The catalogue will prove a handy reference-book for architects as well as builders.

Messrs. Jones & Campbell (Larbert, Scotland) have sent us two catalogues, one of which contains examples of kitcheners and fire-grates, and bears at the head of the title-page the legend, "Concerning the reputation and pockets of architects, builders, corporations, and municipal ratepayers." Architects may elect to take care of their own reputations by selecting fire-grates from a larger and more artistic assortment than the four illustrated in this catalogue. The second catalogue includes illustrations of garden rollers, and more or less florid restaurant tables, garden seats, umbrella stands, and other cast-iron work; from an artistic point of view, the garden rollers are an easy first.

Messrs. Bolton & Laughlin (Ipswich) have sent us their new catalogue, containing full-size sections of the moulded bricks, copings, etc., which they manufacture and stock. There are also some illustrations of chimney-pots, and of carved panels of their red rubbers, and the catalogue draws attention to their red and white Suffolk facings, arch-bricks, etc.

A sixteen-page price list of varnishes, stains, paints, etc., has been sent us by Messrs. S. Rowley & Son. There are only four pages of descriptive matter, and of these two are occupied by a flattering account of the "Adamantine" water-paints manufactured by the firm; "their many virtues," we are told, "are not unbalanced by a single risk," but this probably is not quite what was meant.

The Adjustable Cover and Boiler Block Company (Reading) send us a list containing illustrations and dimensions of Marsh's fire-brick boiler-seating blocks and covers for main downtake and side flues. The seating blocks are rebated, so as to prevent the escape of heated gases into adjacent flues; the two curved blocks which form an arch for the main flue are also rebated at the crown; and the chief advantage of the downtake and side flue-covers is that they can be lifted without trouble whenever desired. The latter is a desideratum affording great facility for examination of the boiler shell.

The Municipal Engineering and Contracting Company (Chicago) send us a pamphlet entitled "Instructions to Agents," which we learn from the letterpress is one of "a short series of talks to those who are to act as our agents." The first objects of this "talk" are to make clear the properties of concrete, the best proportions to adopt, and the superior quality of machine-mixed concrete. These objects are satisfactorily attained. The last, and, of course, the most important, object of the pamphlet is to convince agents that the concrete-mixer made by the firm is the best in the market. As a mixing machine this apparatus is exceedingly simple, and the absence of internal beaters and other mechanism obviates stoppages at intervals for the purpose of cleansing.

We have received from Mr. Percy Pitman, Bosbury, Ledbury, Herefordshire, a leaflet describing Pitman's combined water-motor and dynamo. It consists of a small dynamo directly coupled to a small turbine, and it is stated that it is suitable for charging ignition accumulators for motor-cars and motor-bicycles. It will work with the house water supply when the pressure is not less than 40 lb. per square inch, but if the pressure be less than this a special set with a belt-drive is provided. Special sets have been supplied which will work with a pressure of only 6 ft. of water. Judging from the photographic block, the machine seems well designed, and is not likely to get out of order.

The Fireproof Company sends us a pamphlet describing and illustrating in a very complete manner their "Dovetail Corrugated" system of fire-resisting construction. A good deal of space is devoted to partitions of various kinds. The distinctive feature of such constructions consists of sheet steel corrugated so that its cross section represents a key pattern with projecting and entering dovetails occurring alternately on both sides. The sheets, which are made in different sizes, gauges, and with different depths of corrugation, are intended for erection between upright H-bars to form the basis of the partition, which is completed by the addition of any suitable plaster, or of Portland cement mortar. As partitions may have to resist pressure from either side the dovetail section is distinctly good from the structural point of view, and affords an excellent key for plaster of any kind. In addition to numerous photographic views, the pamphlet includes several pages giving drawings of details relative to erection and methods of fixing joinery. As will be readily understood, the same system lends itself very well to ceiling construction, and it has been applied to the design of complete buildings, several of which may be seen in or near

London. One of the most noteworthy among these is the temporary two-story building containing eighty-eight cells for the reception of prisoners awaiting trial at Newgate Prison.

The Student's Column.

STEAM BOILERS AND PIPES.—IV.

SELECTION OF BOILER TYPE (*continued*).

AS we stated in Article III., the efficiency of a boiler is very much affected by the manner in which it is installed. The influence of this factor is variable, because some boilers are self-contained, requiring no brickwork and working with a short steel chimney, while others require elaborate brick-setting and a tall brick chimney.

Boilers which come within the second category are exposed to influences from which those in the first category are exempt, and experience shows that the manner in which the brickwork is designed and executed has a great deal to do with the satisfactory performance of the boiler.

Vertical boilers, locomotive, and other independent boilers simply require to be placed on the sites chosen, and, providing the site to be suitable, and the boiler to be efficiently covered with non-conducting material, and provided with a chimney of the required dimensions, the installation may be regarded as having been made in the best possible manner.

Watertube, Cornish, Lancashire, and some types of tubular and semi-tubular boilers necessitate more or less elaborate brick setting, and, as a general rule, require a chimney shaft of considerable height to ensure adequate draught.

A very prevalent impression is that the work of boiler setting can be safely entrusted to any bricklayer or builder. We readily admit that numerous building contractors are quite competent to undertake such work, having had the necessary experience and being in a position to keep in their employ men who are skilled boiler setters. Still, the fact should not be overlooked that many builders possess very little knowledge of this special branch of their art.

Boiler setting and chimney design are subjects which deserve more than passing mention, and, as we propose to deal with them in separate articles, attention is here limited to the discussion of such matters as belong to the part of our subject with which we are at present concerned.

Every architect who has had experience in the heating and ventilation of buildings is aware of the fact that brick walls permit the passage of air in considerable volumes notwithstanding the small effective head causing circulation. In the case of a steam boiler encased in brickwork having internal flues in connexion with a chimney giving a draught equivalent to from ½ in. to 1 in. of water, it is easy to understand that very large quantities of air may be drawn through the masonry.

Comparatively little attention has been given to leakage in this manner. Mr. Bryan Donkin's work on "The Heat Efficiency of Steam Boilers" contains particulars of some tests in connexion with which measurement was made of the volume of air passing through the brickwork of Cornish boilers. In three cases quoted the leakage through the flue walls was found to average about 1 lb. per pound of coal consumed, thus representing a considerable addition to the volume of gases passing up the chimney shaft.

The reader should bear in mind, however, that air so gaining admission does not reduce the initial flame temperature nor reduce the efficiency of the boiler. It merely dilutes the gaseous products passing through the chimney, causing reduction of their temperature and giving the chimney more work to do. Owing to reduction of temperature, the gases inside the chimney are increased in weight, and thus an increased duty has to be performed by a reduced motive power. The moral is that bricks of the most impermeable character should always be employed for the outer walls of boiler flues, and Portland cement should be used instead of lime mortar. If glazed brick should be thought too expensive, the outer walls of the setting should be built of hard-pressed brick. In boiler plants already built the infiltration of air may be prevented by painting the brickwork up to the foot of the chimney until it is rendered airproof, or by casing it with sheet-iron or steel.

A point of direct interest to the architect in connexion with the infiltration of air is that the dimensions, and, consequently, the cost of the chimney shaft must be increased if this part of the installation has to lift and convey an additional and perfectly useless volume of gas to the outer air.

Finally, we may remark that, as the outer flue walls of a single boiler present a far greater proportion of surface liable to admit air than the outer walls of a battery including two or more boilers, the smallest plants are those requiring the greatest attention.

Having referred to the disadvantages following the inward penetration of air into the flues of a boiler, we will next consider the losses due to the outward transmission of heat to the atmosphere.

It is evident that the actual net efficiency of a boiler is represented by the fuel efficiency, less the amount of heat transmission through the shell and brickwork. Under average working conditions the heat lost by radiation from steam boilers adequately covered with non-conducting material and worked under the most favourable conditions may be taken at 6 per cent. for internally-fired boilers and 12 per cent. for externally-fired boilers.

Let us assume that two boilers of identical construction are in use under equal steam pressure, but that one boiler (A) is worked at or near its full capacity and the other (B) at half its full capacity. Then, as the temperature of the surfaces exposed to the surrounding air will be the same for each boiler, the amount of heat dissipated by radiation must also be equal.

Let 100 denote the amount of heat received by boiler (A), 50 the amount of heat received by boiler (B), and 6 the loss of heat at 6 per cent. of the heat received by boiler (A). We then get the following comparison :—

Boiler (A) ..... 100 − 6 = 94
„ (B) ..... 50 − 6 = 44

Therefore the proportionate loss from boiler (B) is more than double that from boiler (A).

This means a very serious diminution of efficiency in boiler (B), and it is clear that economy is to be secured by employing boilers of such size that they may be worked fairly up to their full capacity. The practice of laying down excessively large boilers with a view to providing for future requirements not only involves capital expenditure which might be avoided for some years to come, or perhaps entirely, but it also involves uneconomical working.

For the purpose of comparing the probable losses by radiation from boilers of different types, it is necessary to use really reliable data in calculations. Many experiments have been made upon various types of non-conducting material applied in different ways. The results of such tests are not applicable to steam boilers, because it has been proved by experience that the amount of heat lost by steam boilers is fully double the amount suggested by tests of steam pipes.

In Table V. we give, in terms of British thermal units, the approximate amount of heat radiated per hour from boiler surfaces and brickwork.

By the aid of this table it is easy to compute the losses for different forms of boiler, and so to arrive at values which, as shown above, are necessary for the comparisons of net efficiencies :—

TABLE V.—APPROXIMATE HEAT LOSSES FROM BOILER SURFACE AND BRICKWORK PER SQ. FT. PER HOUR FOR 1 DEG. F. DIFFERENCE OF TEMPERATURE BETWEEN THE INNER AND OUTER SURFACES OF THE MATERIAL.

Nature of Material.	Heat Loss B.Th.U.
Steel Plate Uncovered	8·0
„ Covered 2 in. thick ..	1·4
„ „ 3 in. „ ..	1·0
Brickwork 12 in. thick	0·8
„ 18 in. „	0·6
„ 24 in. „	0·4

With the exception of the front and a small portion of the top, Cornish and Lancashire boilers are entirely enclosed in brickwork which never attains a very high temperature, and where two or three boilers are laid down in a row radiation from the flue walls is very small.

Even where only one boiler is used, the loss of heat through the brickwork can be reduced to a minimum by placing the boiler near one wall of the building and providing an enclosed air space between the wall and the boiler setting and by building the exposed wall of the setting with an interior air space.

Table VI. contains some comparative results by Mr. Strohmeyer which indicate generally the radiation losses from four representative types of steam boiler. It should be noted that all the values are based on the assumption that the boiler is being worked at a steady rate, and that the brickwork, where used, is maintained at uniform temperatures. Comparison of cols. 7 and 9 of this table shows very clearly the proportionately heavy radiation losses resulting from underworking the different boilers :—

TABLE VI.—COMPARISON OF ESTIMATED HEAT LOSSES BY RADIATION FROM VARIOUS TYPES OF BOILERS (*Strohmeyer*).

No.	Type.	Dimensions.		Heating Surface.	Available Heat.	Heat Loss.	Available Heat.	Heat Loss.
		Length.	Diameter.					
		ft. in.	ft. in.	sq ft.	B.Th.U.	p.c.	B.Th.U.	p.c.
1	Cornish	25 0	5 0	430	3,220	4·4	1,610	8·8
2	„	28 0	6 0	580	4,340	4·6	2,170	9·1
3	Lancashire	28 0	6 6	770	5,780	3·6	2,890	7·2
4	„	30 0	7 6	1,010	7,580	3·3	3,790	6·6
5	„	30 0	9 0	1,170	8,780	3·6	4,390	7·2
6	Marine	9 8	11 0	1,080	8,100	4·7	4,050	9·5
7	„	9 8	12 0	1,260	9,440	4·7	4,720	9·5
8	„	10 0	13 0	1,630	12,200	4·2	6,100	8·3
9	„	9 9	14 6	1,890	14,200	4·2	7,100	8·3
10	Watertube	19 0	3 3	735	5 520	9·7	2,760	18·0
11	„	23 0	5 0	1,619	12,150	6·4	6,075	11·8
12	„	23 0	8 6	2,852	21,390	3 9	10,696	7·3

The last point remaining to be discussed in this article is the influence of furnace design on the efficiency of a steam boiler.

As a general axiom, it may be taken that boiler makers know far better than the average architect or engineer how to design a boiler furnace. For this reason the purchaser will generally do well to accept standard designs unless otherwise advised by an expert.

There are, however, some types of boiler for which the furnace has to be specially built. For example, the externally-fired multitubular boiler is delivered in separate parts comprising the boiler proper, fire grate, and ironwork to be built into the brick setting. The watertube boiler is another type requiring a brick-built furnace.

These and other forms of externally-fired boilers are sometimes set with efficient, and sometimes with inefficient, furnaces, the design of which is not necessarily governed by the dimensions of the furnace fittings supplied by the makers.

Again, take Cornish and Lancashire boilers. Both of these types are supplied with self-contained furnaces, presumably of correct form. But, as the partly-consumed furnace gases have to pass along a water-cooled flue, the conditions are unfavourable for completing the process of combustion. Matters are still worse when such boilers are fitted with cross tubes containing water which, by presenting additional cooling surface, render secondary combustion still more difficult. Various devices suggested for

securing secondary combustion will be described in connexion with the details of boiler setting in a subsequent article.

In Cornish and Lancashire boilers with return tubes the combustion chamber at the back ensures double combustion, this being one reason for the very satisfactory performance of such steam generators.

It may be further pointed out that, even when a setting plan for a given building has been obtained from the boiler maker, details of the flues between the boiler and the chimney frequently have to be settled by the architect, upon whom devolves also the provision of a properly-proportioned chimney. These parts of the installation must receive special attention, or the efficiency of the other parts of the work may be seriously impaired.

From the foregoing it will be seen that, without entering into the domain of the boiler designer or the boiler maker, the architect can frequently do something in the way of improving working conditions when preparing the plans for boiler setting.

It ought, also, to be clear that the general character of the setting necessary for different forms of steam generators has a direct bearing on the choice of the boiler type.

Before entering into details connected with the practical installation of steam boilers and auxiliaries, we have one more point to dispose of, namely, the effect of apparatus for heating feed water. This will form the subject of our **next article.**

OBITUARY.

MR. KERR.—The death, on July 8, is announced of Mr. William Kerr, of Ayr. He was architect of the Baptist Church at New Prestwick, Ayrshire, which consists of a church for a congregation of about 260 persons, with class-rooms, vestry, heating-chamber, etc., and was opened in May, 1901. Twelve months ago he prepared the plans and designs for the alteration and enlargement, at a computed cost of about 12,500*l.*, of the Kyle Union Poorhouse, Ayr.

GENERAL BUILDING NEWS.

LIVERPOOL CATHEDRAL.—At a conference of the Rural Deanery of Childwall, held at the Church House, Liverpool, on the 13th inst., Mr. Alderson Smith gave the Chapter an account of the progress of the cathedral works. Messrs. Morrison, of Wavertree, were appointed contractors for the whole of the south-end foundations up to the transept. The work was begun in October, and there were being employed an average of 180 men per week. The Lady chapel foundations were now complete, and ready to receive the superstructure. The experts had found that the average depth of the rock was 10 ft., though in some places it was 50 ft. On the site of the eastern tower four huge holes had been sunk, some to a depth of 50 ft. Into these concrete had been placed in sections, and, in order to further strengthen the foundations, a series of wire hawsers had been built into the concrete. The base of the tower was 34 ft. square, and at the surface 16 ft. At the western tower most of the excavation had been done, and provision was being made for the heating chamber and the organ blowing chamber. The cost up to this point would be something like 400,000*l.*, including the Lady chapel. Of this sum 100,000*l.* was still needed. The experts were of opinion that it would be unwise to spend more than 30,000*l.* a year, so that it would be nearly ten years before they would reach the apex of the roof where the tower proper began. Accommodation was being made for the workmen engaged on the building, a room capable of holding 300 persons having been provided.

THE RESTORATION OF IONA CATHEDRAL.—On the 14th inst. the partially restored Cathedral of Iona was opened for public worship. The work of restoration has been going on for some years, but has been greatly retarded by lack of funds. Much still remains to be done, and it is estimated that at least 10,000*l.* will be required for the restoration and upkeep of the edifice in a manner creditable to Scotland and worthy of the historic associations which cling round the ancient building. Meantime, while waiting for further subscriptions, it has been decided to utilise that portion of the cathedral which the restoration, so far as it has gone, has made available for Divine service. The choir and the side aisle in the south transept were roofed in 1902. Last summer the north transept was restored, the gable was built, and the roof put on. At the same time the sacristy was roofed, the arcading repaired, and a wall that filled it up was taken down. The floors of the choir, with its side aisle and the transepts, were all paved anew, and the floor of the ringers' chamber in the tower was re-erected. By the end of last year the whole building was enclosed as far west as the ruined nave, and the glazing of the windows completed the operations for the season. A good deal remains to be accomplished before the restoration of the choir can be called complete, but owing to the urgent need for expenditure on repairs to ensure the safety of other portions of the building, it is unlikely that anything more can be done in the choir for some years, unless contributions come in more freely. Designs have been prepared for stalls and other fittings for the restored cathedral, but for the present a temporary pulpit and some church chairs must suffice. The next operation proposed is to complete the nave, roof it, and enclose it, and make it part of the church. When the nave is roofed, the building which fills up the western arch under the tower, and at present cuts off the ruined nave from the choir, will be demolished. In the opinion of Dr. Honeyman, the architect, if all this were done it would be an enormous improvement both to the interior and the exterior of the cathedral, and it would give facility for placing a great many of the more precious of the sculptured ornaments under protection from the weather. The opening up of the two arches on the north side of the choir has greatly improved the effect of the church. At a recent meeting of the Glasgow Archæological Society, Dr. Honeyman stated reasons for believing that those arches formed part of the arcade of a much older building than the present structure, at a period when the level of the choir floor was at the base of the existing pillar there, and a crypt existed under that level. What is called the sacristy, in his view, is really the north aisle of the former choir. To show the reasonableness of his theory, he mentioned that, while the floor of this arcading is 6 ft. 3 in. above the present floor, it is only 2 ft 2 in. above the level of the nave floor at its western end, which is only about as much as the general rise from a nave into a choir. While lack of funds precludes the continuance of the restoration work this year on the same scale as last summer, something will require to be done at once in the way of making the walls of the tower and south transept watertight. The storms of last winter showed many weak spots, where rotten stones rendered ordinary pointing ineffectual.—*Scotsman.*

WESLEYAN CHURCH, FORD, DEVONPORT.—The memorial stones of a new Wesleyan church have just been laid at Ford. Mr. H. J. Snell is the architect, and Messrs. A. R. Lethbridge & Son are the contractors. The new church will have direct communication with the present church, the old building being destined to become the Sabbath school. It will have a gallery on three sides, and should seat about 800 persons. Mr. R. Darke is the clerk of works.

CHURCH HOUSE, ST. JOHN'S, IVYBRIDGE.—The foundation-stone of the new Church House at Ivybridge, situate almost immediately opposite the Church of St. John, was laid on the 11th inst. The room when erected will entail an expenditure of about 500*l.*, and will accommodate 120 people. The building will be constructed of Redhill stone. The architect is Mr. C. A. Pearce, and the builders are Messrs. Lincook & Blight, of Ivybridge.

RE-OPENING OF ST. ILLTYD'S CHURCH AT LLANTWIT MAJOR.—The Bishop of Llandaff performed a dedication service at St. Illtyd's Church recently, after repair, etc., of the building. Messrs. G. E. Halliday and Clarke were appointed architect and builder respectively. Most of the work done was in the square tower, which had been built after the rest of the church, and had thrust away from the roof. This was remedied, and additional support had been given to the tower by the erection of four buttresses. The original base of the church was reached by clearing off the accumulated sod of centuries, and windows that had been blocked up were re-opened. Altogether a sum of 1,100*l.* was spent. The reparation of this church has led to a discovery which, from the archæological point of view, is one of the most important that has been made in South Wales during recent years. There has been much speculation concerning the history of the Church of St. Illtyd, one of the most ancient in the Principality, and the opinions of archæologists have been at variance as to which portion of the present building, which has been several times restored and re-built, is upon the site of the original church. The generally accepted view has been that what is known as the eastern church was really the oldest building, and that the western church and chantry were additions. It was, however, remarked as curious that amongst the natives of the district the western portion had always been called the "old church," and Mr. G. E. Halliday, the architect who has been directing the latest work of repair, and has devoted considerable time to the study of the archæological evidence available, suggested in 1900 that this was probably the most ancient part of the building. The additional evidence which his recent researches have disclosed now enables him to state conclusively that this view was correct, and to trace in chronological order the sequence of church buildings which during successive centuries have been erected on the site. The first building was of pre-Norman date—probably of the IXth century—and, provided that it was built of stone, it seems likely was co-eval with the old Llantwit Cross. It consisted of the present western church, with two transepts and a choir, which extended about 28 ft. beyond the site of the present tower, and it is interesting to note how the lines of this original Church of St. Illtyd have been preserved throughout the subsequent re-buildings. The nave, so far as its foundations are concerned, is intact, and the transepts exist in part. This church seems to have remained without alteration during the troublous reigns of the Norman Kings, and to have received its first addition at the beginning of the XIIIth century. Then the central tower—which till now had been regarded as a portion of the original church—was inserted. The next great event in the history of the church was its practical re-building during the late XIIIth century. The work which was then accomplished included the north aisle as we now see it, the nave east of the tower without the chancel arch, the south aisle reaching two bays further east than at present, and the south porch and parvise of the western church, and the elongation of the early nave westward. It was then that the XIIIth century arcade in the eastern building was erected, and it was the existence of the original wall under the present arcade which nearly caused the collapse of the church. While Mr. Halliday found the northern arcade in good condition, the south was 16½ in. out of the perpendicular. To repair it two courses were open—either to support the roof and re-build the arches or to secure the foundations and support the fabric with flying arches and corresponding buttresses. The latter method was adopted. During the XIVth century there was another re-building. It was then that the two eastern bays of the south arcade were built up and the chancel arch was inserted, and the church was then left practically as it is to be seen to-day. The tower, it may be added, affords an interesting study, as traces of the old roof lines are still in existence. There is no sign, of course, of the earliest roof, for the tower was not included in the original building, but the position of the early XIIIth century roof is distinctly shown. The later XIIIth century roof was a few feet above it. This roof, which was at the height of the present chancel, was at that time carried at the same level to the eastern end of the church, but the roof line of the XIVth century re-building shows that the roof of the nave was considerably raised when the chancel arch was inserted.—*Western Mail.*

CHAPEL, SMALL HEATH CHRISTIAN METHODISTS.—The memorial-stones of the new Bible Christian Methodist Chapel, Prince Albert-street, Bordesley Green, Small Heath, were laid on the 12th inst. The new chapel will be of red brick, with Bath stone and terra-cotta facings, and will be capable of holding 475 worshippers. It has been designed by Mr. V. H. Culliford, of Newton Abbot, and is being built by Mr. A. Pearce, of Small Heath.

QUEEN ALEXANDRA'S COURT, WIMBLEDON.—The King and Queen together on Saturday last opened Queen Alexandra's Court at Wimbledon, at which sixty widows or daughters of officers of both services will, in their declining years, find homes. The builders were Messrs. Tennant & Co., Willesden Green; steelwork by Messrs. R. Mo land & Sons; wrought iron work by Messrs. Locherbie & Wilkinson; and electric installation by Messrs. Whitehead Brothers, Wimbledon. Mr. C. E. Lancaster Parkinson was the honorary architect. The cost of site and buildings has been 60,000*l.*

"TERRY'S" THEATRE, STRAND.—Mr. F. Matcham has been appointed architect for some alterations and improvements which are being carried out for Mr. Edward Terry. The works comprise the erection of additional dressing-rooms, an extension of the seating accommodation in the auditorium, and certain re-arrangements of the interior in compliance with official requirements.

NURSES' HOME, NORTH-EASTERN HOSPITAL FOR CHILDREN, LONDON.—The foundation stone of the new Nurses' Home, which is being built in connexion with the North-Eastern Hospital for Children, was laid recently by Lady Amherst of Hackney. Mr. Arthur G. Leighton is the architect, and Mr. J. F. Greenwood the builder.

FREE LIBRARY, WOMBWELL.—The foundation stone of a new public library was laid a short time ago at Wombwell. The style of the building is modern Renaissance. The Council have entered into a contract with Mr. W. Johnson, of Wombwell, for the completion of the whole of the work for the sum of 3,100*l.* Mr. A. B. Lidford, Wombwell, was the architect, his plans being accepted in competition.

PUBLIC LIBRARY, HATTON, N.B.—The new public hall and library at Hatton, Cruden, was opened recently. The building is two stories high, and was designed by Mr. William Davidson, architect, Ellon. On the ground floor accommodation is provided for reading-room and lending library, with waiting-rooms, cloakrooms, etc., while the upper floor is devoted to hall space. The front entrance door leads into the vestibule, to the right of which cloakroom accommodation is provided, while to the left a few steps downwards leads to the library and

reading-rooms. The public hall is reached from the front elevation by a stair to the left, off the vestibule, on each side of which is provided a moulded handrail of birch, French polished, and carrying balusters of ornamental cast-iron. It is continued round the landing, and up to the gallery, in which accommodation is provided for about sixty persons. The hall, with a floor space of 42 ft. by 29 ft., is furnished with a pitch pine dado, moulded and plain alternately, extending to the height of the window sills, and finished off at that level with a top moulding. The contractors were :—Mason work, Mr. Edgar Gauld, Aberdeen; carpenter work—Messrs. Davidson & Son, Hatton; slater work—Mr. James Greig, Peterhead; plaster work—Mr. Alexander Kelman, Peterhead; and plumber work—Mr. John Davidson, Peterhead.

BRANCH LIBRARY, ALMONDBURY, YORKSHIRE.—Alderman J. A. Brooke laid the foundation-stone, on the 8th inst., of a new branch free library at Almondbury. The building is being erected from designs prepared by Mr. K. F. Campbell, M.Inst.C.E., Borough Engineer, on a site in Church Walk. The building has a frontage to Church Walk of 56 ft. 8 in., and to the intended new street of 39 ft. 8 in. The elevations facing the streets named are to be built of pitch-faced wall stones from Elland Edge quarries. Other elevations of outside wall stones from Crosland Hill, all with tooled ashlar dressings from Crosland Hill quarries. The principal front is broken up by the two square bays and doorway, which are carried up as gables, and finished with moulded finials with panel over doorways carved and lettered "Public Library, 1905." The roof is formed over-hanging, and is to be covered with dark green Westmoreland slates, finished with red ridge tiles and ornamental finials. The principal entrance is from Church Walk into a vestibule which gives access into a hall 12 ft. by 12 ft., from which the several rooms are entered. To the left is the news-room, 23 ft. by 18 ft., to the right the magazine or committee-room, 18 ft. by 18 ft., and lending library, 20 ft. by 15 ft. In the basement librarian's store-room and heating apparatus rooms are provided. The whole of the internal fittings are in pitch-pine, and all rooms are boarded round to a height of 4 ft. 6 in. The various rooms are divided from the hall by elliptical arched openings, filled in with moulded and glazed screens. The lighting throughout is by electricity, and the whole of the interior woodwork is to be stained and varnished. The estimated cost of the building is 1,500*l*., and the various works have been intrusted to the following contractors, viz. :—Masons' work, J. W. Boothroyd, Almondbury; joiners' work, J. W. Sykes & Sons, Lockwood; plasterers' work, Thos. Longbottom & Sons, Lockwood; plumbers' work, J. Marsden & Co., Huddersfield; slaters' work, Alfred Bower, Crosland Moor; heating engineers' work, Thos. Armitage, Huddersfield; and painters' work, Lunn & Cardno, Huddersfield.

PROPOSED NEW POST-OFFICE, ST. IVES.—It is proposed to erect a new post-office on the site of the old Manor House in Tregenna-place. The accommodation on the ground floor will consist of a public office nearly 29 ft. by 24 ft., and a sorting-room 37 ft. by 20 ft., with a portion 21 ft. by 14 ft. at right angle to it. The larger portion of this room, in line with Chapel-street, will be single story, with a large light in its roof. The main entrance will be from Chapel-street. On the ground floor there will also be a room—17 ft. by 10 ft. 6 in.—for the postmaster, retiring-rooms and lavatories for the male clerks, postmen, and boys, and lock-up rooms for stores, etc. In a court at the rear, with approach from Chapel-street, will be a shelter for trucks. There will be a side entrance to the premises opening into a hall affording further approach to all the apartments on the ground floor, also to the staircase, which is to give access to the upper rooms, etc. The upper floor will be arranged for instrument-room, telephone-room, battery-room, retiring-room and lavatories for the postmaster and for the female clerks, also boys' waiting-room—all of a wide corridor. The architect is Mr. Henry White, of Keigwidn, Hea Moor, R.S.O., under whose supervision the building will be erected by Mr. J. R. Sandry, of St. Ives.

CATTLE MARKET, LISKEARD.—The new cattle market at Liskeard is now nearly completed, and will be opened shortly. Accommodation is provided for 1,100 sheep and 300 cattle. The whole of the area to be occupied by the sheep and cattle is being laid with impervious pavement. In the bullock stalls granite chippings have been laid and grouted with cement. On the Dean-street side of the auction ring a large shed, 90 ft. long by 14 ft. wide, has been erected for the accommodation of cows and calves. Further along is the weighbridge, with office and dealers'-room, flanked by implement sheds, store-room, and lavatory accommodation. The contracts for the ironwork for the cattle pens were secured by Messrs. J. C. & C. Isaac, of Liskeard, and this firm also received the contract for the cement required. Mr. J. H. Davey, of Liskeard, has been intrusted with the contract for supplying the iron gates and railings at the two entrances; while Messrs. Runnalls & Sons' tender was accepted for the construction of the sheds, lavatory, and office accommodation. The market has been laid out in accordance with plans prepared by Mr. John Sansom, architect, of Liskeard, under the supervision of the Borough Surveyor (Mr. T. McMeikan) at a total cost of 5,071*l*.

BANK PREMISES, DOVER.—New premises are about to be erected in the Market Place, Dover, for Loyds' Bank. The plans for the work have been prepared by Mr. F. W. Waller, architect.

BATHS, BRADFORD.—The Mayor of Bradford (Alderman W. E. B. Priestley) opened on the 13th inst the new bath which has been erected in connexion with the Lapage-street Council School, Bradford. The main swimming bath is 60 ft. long by 20 ft. wide. For about a third of its length the bottom is almost flat and the water only about 3 ft. deep, with a floor of concrete, so that little children may find an easy footing. The remainder of the bath slopes down rapidly to 6 ft. 6 in. Around it are arranged forty-four dressing-boxes. In addition there are provided a douche bath specially for the school children using the swimming bath, and two slipper baths and three douche baths for public use. Mr. C. H. Hargreaves was the architect.

NEW WARDS, LONDON HOSPITAL.—The new maternity wards, which are on the second floor of Alexandra wing, consist of three separate wards about 20 ft. square, for three beds each, with a cubic capacity of about 1,650 ft. per bed, and one smaller ward for a separation case. A labour room, 20 ft. square, with a large bath-room, adjoins; the suite is complete with scullery, sink rooms, testing lobby, etc., also a sitting-room for the sister-in-charge. The three wards, which are on the south side of the building, open out on to a balcony 9 ft. wide. The whole department is lined with opalite of a delicate green colour, and the labour room, bathroom and sanitary annexe have mosaic floors. The doors are of "hospital" type, in teak, being plain slabs without panels. The labour room has a large bay window facing north and is specially ventilated, the air being drawn into the room by means of a fan through a gauze screen, and warmed by passing through a copper swing steam coil. The vitiated air is expelled by means of a fan on the opposite side of the room. The whole of the fittings to the sinks, etc., in this room are nickel-plated, to save the labour of cleaning. The work has been carried out from the designs and under the superintendence of Mr. Rowland Plumbe, who has been in charge of the whole of the rebuilding of the hospital.

MODEL LODGING-HOUSE, SOUTH SHIELDS.—A model lodging-house has just been erected in Saltwell-lane, South Shields. The site covers an area of 5,602 superficial ft., and the front entrance is in Spring-lane, where is erected the deputy's office. The dining-room which adjoins measures 36 ft. by 22 ft. It is filled with a large hot-plate range, where a dozen dinners may be cooked at one time. There is also a large circulating cistern where hot water is always on tap. One other feature it possesses—that is, a private locker for each lodger. A number of hot and cold water baths are also provided and there are two bath-rooms. The reading-room and smoke-room is arranged for. There are ten wash-basins, and under cover in the backyard, and the water-closets, of which there are a large number, are designed on the trough system. The sleeping accommodation is of a two-fold character—the regulation bedrooms, of which there are twelve, and the cubicle, of which there are sixteen. In the latter the occupant is properly screened off from his neighbour, and he has a separate door to his apartment. The cubicles are arranged in rows, eight of them on the ground floor and eight on the first floor. They have open roofs. The bedrooms are 17 ft. by 22 ft. each. A broad fire-proof staircase unites the separate floors, and from one of these access is given to an independent corridor leading to the back of the premises where the main exit is provided. The building has been erected from the plans and drawings of Mr. F. M. Dryden, architect, Newcastle, and the work of construction has been done by Messrs. W. J. Robertson & Sons, contractors, South Shields, the sub-contracts being entrusted to Mr. A. Holmes for the painting, and Messrs. J. Dagleas & Son, for plumbing.—*Shields Daily Gazette.*

STAINED GLASS AND DECORATION.

WINDOW, SPELDHURST CHURCH.—At Speldhurst Parish Church recently a new east window, which has been placed in the east wall of the chancel, was dedicated. The new window is a representation of the Crucifixion, and has been carried out by the firm of Messrs. Morris, of Merton Abbey, Surrey, principally from designs by the late Sir Edward Burne-Jones, Bart.

APPOINTMENT.

UNIVERSITY OF BIRMINGHAM.—Professor Stephen M. Dixon, M.A., Assoc.M.Inst.C.E., who at present holds the Chair of Civil Engineering in the Dalhousie University, Nova Scotia, has been unanimously elected to the Chair of Civil Engineering, Birmingham University.

SANITARY AND ENGINEERING NEWS.

WATER SUPPLY, TAUNTON.—The new reservoir at Luxhay, which has been erected for the purpose of increasing the water supply of Taunton, was opened recently. The capacity of the reservoir is 120 million gallons, and its cost was 27,536*l*. Mr. W. C. Shaddock was the contractor, the engineer being Mr. F. W. Roberts. Mr. H. T. Coles was the manager and clerk of the works.

ILKESTON SEWAGE DISPOSAL.—Towards the end of last year some members of the Ilkeston Town Council were deputed to visit the new sewage disposal works at Hanley, in Staffordshire, designed by the Engineers to the Hanley Corporation, Messrs. Willcox & Raikes, at an estimated cost of 76,000*l*. A conference was afterwards arranged with this firm to discuss the question of the sewage disposal of the Borough of Ilkeston, the outcome being that Messrs. Willcox & Raikes were also retained to prepare a scheme on similar lines for Ilkeston. Negotiations were immediately opened with landowners in the borough for the purpose of acquiring the area of land recommended by the engineers as most suitable on which to erect sewage disposal works. After fully considering various alternative schemes the Town Council decided, at a special meeting held on Wednesday last week, to proceed with the complete scheme, which provides for the purification of the sewage from a population of 30,000 by bacteria treatment in liquefying tanks and percolating filters. The engineers have accordingly been instructed to complete plans and estimates for forwarding to the Local Government Board.

THE EDINBURGH WATER SUPPLY.—The threatened water famine in Edinburgh is by no means improbable. The drought has been so protracted that it may be said to have lasted almost since August of last year, for the rainfall scarcely added anything to the permanent storage in the reservoirs, the contents of which were practically always the same. The scarcity of water is more severely felt now than it was a decade ago, for not only has the population grown greatly during that period, but there has been a largely increased demand for water for public works, the cable tramways, the electric-light undertaking, the public baths, and other forms of municipal enterprise having brought about a much larger consumption of this commodity. It has also to be borne in mind that in addition to the quantity of water delivered in the city, about five million gallons are required daily for compensation, and that is drawn from the Moorfoots, the North Pentlands, and Glencorse. Ten years ago the population of the district served was 385,700, as compared with 455,000 at the present time, or an increase of nearly 70,000, and yet the supply of water per head of the population is exactly the same—39·83 gallons in 1895, and 39·82 gallons in 1905. The rainfall at Gladhouse and Glencorse up till Tuesday last week was only 25·28 in., as compared with 38·79 in. at the same period last year, and 47·78 in. in 1903, so that there has been almost a half less rain than was experienced two years ago, when there were a thousand million gallons more water in the reservoirs, and the supply per head was slightly less, being 39·70 gallons. At no time during the past ten years has the storage of water in the reservoirs been so low as at the present time. At the corresponding date in 1895 the quantity was 1,915,410,000 gallons; now it is 1,406,080,000 gallons, or a decrease of 509,000,000 gallons, with, as has been said, an increase of 70,000 in the population. In 1896 the quantity of water stored was 1,938,860,000 gallons. It rose to 2,245,567,000 gallons in 1897, and for the following seven years it never fell below 2,000,000,000 gallons, but this year there was a drop in June to 1,777,204,000 gallons, and a further reduction this month to the figure already given. The delivery per day in Edinburgh has ranged from 15,368,000 gallons in June, 1895, to 18,120,000 gallons this month, the largest quantity delivered during that period having been in 1901, when the supply was 18,562,000 gallons. In only four years has the supply per head been greater than at present—in 1897, 1899, 1900, and 1901, when the figures were respectively 41·30 gallons, 41·95, 41·08, and 43·26, as against this month's supply of 39·82 gallons.—*Scotsman.*

FOREIGN.

FRANCE.—A new Society, having for its objects the defence of the rights of artists and of artistic copyright, has been started by the exertions of the Société des Amis de Luxembourg. A number of the leading French artists have joined it.——Thanks to M. Dujardin-Beaumetz, the Under-Secretary of State for Art, the Ecole des Beaux-Arts will henceforth be open for students in wood-engraving, etching, and lithography.——A new hotel is to be built in the Avenue Kléber, on the site of the old Palais de Castile, once the residence of Queen Isabella of Spain.——A group of new schools has just been completed at Bois-Colombes, from the designs of M. Pasquier, and also a new theatre, of which M.

Rischmann is the architect.——M. Rochet, architect, of Bourg, has completed the plans for a new hospital which is to be built at Amberieu-en-Bugey.——A young ladies' college has been built at Perigueux.——The Chamber of Commerce of Cambrai proposes, in co-operation with the Chamber of Commerce of St. Quentin, to construct a second tunnel on the St. Quentin Canal, at an estimated cost of 7 million francs.——A municipal Casino is shortly to be erected at Cannes.——The Department of Public Works has under consideration a scheme for the tunnelling of La Faucille in order to put Paris and Dijon in direct communication with Geneva by way of Lous-le-Saulnier. The scheme, which would cost about 115 million francs, would eventually be completed by the piercing of Mont Blanc.——The Académie des Beaux-Arts has awarded the Grand Prix de Rome for engraving on medals and precious stones, to M. Mérot, a pupil of MM. Barrias, Chaplain, and Coutan.

MOROCCO.—Amongst other suggestions made by the Acting British Consul at Tangier (Mr. W. Smith) for the consideration of merchants, with a view of opening up new channels for, or otherwise furthering British trade, are the following:—With the steady influx of Europeans to Tangier a great demand under the heading of furniture has already begun. Cheap, light furniture, such as stained wood, bamboo or basket-work goods are in great demand. If British potters could, by means of sailing vessels or otherwise, arrange cheap freights, they would certainly be able to compete favourably in Tangier. At present the tiles and bricks in use there are mostly of French origin. The average price for roofing tiles is between 2*l.* 15s. and 3*l.* per 1,000 f.o.b. Marseilles; bricks, 5 centimetres thick, are 1*l.* 6s. and 1*l.* 7s. per 1,000 f.o.b. Marseilles.

SOUTH AFRICA.—Tenders have been invited for the erection of additional buildings at the new lunatic asylum in Pretoria; also for the erection of buildings, "alternatively of stone or brick and wood and iron," on a portion of the Upper Tugela Railway between Ennersdale and Los Kop, Natal.——A new gaol is to be built at Pietersburg, Transvaal, at an estimated cost of 10,000*l.*——A large block of buildings has just been completed in Bloemfontein at the corner of Maitland and East Burgher streets. The ground floor is occupied by the National Bank of South Africa, the rest being devoted to offices. Messrs. A. W. Reid & East, of Johannesburg, were the architects (being represented locally by Mr. Jas. C. Cook), and Mr. Hodgson the contractor. Part of the same design and block is used for the Safe Deposit Building, built for Mr. J. W. G. Steyn by Messrs. Parfitt & Roberts. It is constructed of solid masonry and cement with a concrete roof.——In Johannesburg recently Mr. Charles Woods, President of the Master Builders' Association, was entertained to dinner by the members of that body prior to his departure for England, where he will remain for four months.

MISCELLANEOUS.

COTTAGE BATHS FOR BIRMINGHAM SLUMS.—The Birmingham Baths and Parks Committee have had for a long time under consideration the question of providing "cottage baths" in the poorest parts of the city. The idea is not to build large and expensively-equipped bathing establishments, but to rent buildings in the most congested districts in which the poor live, to convert the rooms into cubicles, and then to provide each cubicle with an ordinary washing and shower bath. Councillor Tonks, the Chairman of the Baths and Parks Committee, and members of a special sub-committee have recently made a tour of inspection of the private cottage baths at Manchester, Liverpool, Bradford, and other places. The sub-committee will present to the committee a report in which a number of important recommendations will be made. They advocate, among other things, that an experiment should be made in at least one district by providing near the homes of the poor suitable facilities for washing. At the towns visited it was found that two kinds of baths were in use—the ordinary slipper bath and what is known as the "rain bath," which is very shallow and fitted overhead with a powerful spray. In this the bath has to be taken standing up. The sub-committee favour the provision of a number of slipper baths, but it is not unlikely that a limited number of the other type will be constructed. It has not yet been determined where the experiment will be tried, but it seems probable that the Floodgate-street area will be chosen. In the new Nechells baths it has been decided to provide, in addition to the ordinary slipper baths, a few experimental baths of the "rain bath" type, which are considered to be admirably suited for the use of children. They are also economical both in regard to the consumption of water and to the space occupied. Experience in other large centres shows, too, that they are not altogether unpopular with adults. As indicated, these cottage baths are intended primarily for those people who cannot be induced to make use of the facilities at the existing public bathing establishments. In Liverpool it was found that comparatively few persons availed themselves of the baths, even when they were placed near to their homes, and it became necessary in order to popularise them to make the admission free. In some other places charges have been made of 1d. for a cold water bath and 2d. for warm water with use of towel and soap. A nominal uniform charge will be made in Birmingham, and it is hoped that the baths, the first set of which will shortly be provided, will be properly appreciated.—*Birmingham Post.*

"NEW PREMISES, BURY-STREET."—In reference to this building, which was described in our issue of the 8th, Messrs. A. Gray & Co. write—"Our name seems to be mixed up with the heating apparatus by Messrs. Wontner Smith & Co. We beg to state that the whole of the floors and partitions were supplied and fixed by us and the fire-proofing carried out with Frazzi material, for which our Mr. A. Gray is the sole London agent. We shall be much obliged if you will correct this, for as it now appears it might do us some harm." We gave the list of names as furnished to us by the architect. There seems to have been an accidental error in the wording.

THE SALFORD FUSILIERS' MEMORIAL.—The King has just unveiled the memorial to the men of the Lancashire Fusiliers (Salford) who fell in the war in South Africa. The memorial stands opposite the Salford Royal Hospital. It is by Mr. Thomas Brock, R.A.

UNIVERSITY OF LIVERPOOL.—The Institute of Archæology, founded for the purposes of teaching study, and research in association with the work of the University of Liverpool, has invited Mr. Theophilus G. Pinches, LL.D., to join the staff in the capacity of Assyriologist.

LONDON BUILDING ACTS (AMENDMENT) BILL.—The Highways Committee of Wandsworth Borough Council have reported having received a letter from the London County Council asking their views upon the London Building Acts (Amendment) Bill. The Committee had decided in favour of replying to the effect that they are of opinion that the whole question of the administration of the Building Acts should be reported upon by a Royal Commission, in order that the new legislation may not only provide for the consolidation as well as the amendment of the existing law, but may ensure a substantial devolution of the administration of the Acts from the central to the local authorities; that no Amendment Bill will be deemed satisfactory which does not provide for all administrative duties under the Acts which can be efficiently discharged by the local authorities being transferred to those bodies in accordance with the views expressed by the Royal Commission in 1894; and that any Amendment Bill should be brought forward as a public measure, it being undesirable that a Bill having so wide a public bearing should be introduced as a private Bill.

ECCLESIASTICAL DILAPIDATIONS AND DIOCESAN SURVEYORS.—A series of five resolutions in the matter of ecclesiastical dilapidations were adopted on the last day, July 7, of the joint session of the House of Laymen for the provinces of Canterbury and York, held at the Church House, Westminster. It was resolved that (1) compulsory inspection should be made at least every five years of all ecclesiastical property subject to dilapidations; (2) the bishop should be empowered to order an inspection at any time and to enforce necessary repairs; (3) a uniform system should be adopted in every diocese for clearly defining dilapidations and fixtures, and existing powers under section 71 of the Act, 1871, to remove buildings forming part of the house of residence should be extended to include all unnecessary buildings on glebe lands; (4) the diocesan surveyors should be paid by salary, and be officers of the diocesan boards; and (5) a dilapidation fund should be formed in each diocese to provide against claims for dilapidation, the incumbents contributing thereto annually and with concurrent discharge from liability for such dilapidations as do not arise from wilfulness or neglect.

MEMORIAL TO THE LATE EARL OF CHICHESTER.—A public appeal is made for subscriptions to a fund, computed at 500*l.*, for carrying out a proposal that was made some years ago to commemorate—in his life-time—the work in the parish of the late Lord Chichester when rector of St. Mary's, Lambeth. The memorial will consist of a carved wooden screen and altar, designed by Mr. J. A. Reeve, to be placed at the east end of the south aisle in such a manner as would convert that portion of the parish church into a chapel, and to abut against the choir stalls which the late Earl of Chichester gave to the church in memory of his parents.

NATIONAL FEDERATION OF BUILDING TRADES' EMPLOYERS.—The members of the National Federation of Building Trades' Employers of Great Britain and Ireland, held their summer meetings at Blackpool on Wednesday last week. At half-past ten the members assembled in the Council Chamber at the Town Hall, where the Mayor welcomed them. In the course of his remarks he instanced the rapid growth and development of Blackpool during the past ten years. In 1895 there were 531 houses built, in 1896 there were 744, the following year 984, while in 1898 the highest figures were reached—1,066. They had seemed to go back a bit after that, but still they were again progressing. In 1899 there were 483 houses erected, 429 in 1900, 370 in 1901, 383 in 1902, 311 in 1903, and in 1904-5, to June 30, 454, making a total of 5,755. His Worship then went on to mention the public buildings in the town, and to give the cost of each. The Devonshire-road School was erected at a cost of 22,021*l.*; Thames-road School, 24,298*l*; Revoe School, 20,205*l.*; the new Technical School, now in course of erection, 20,000*l.*; and two new schools proposed to be built, 18,000*l.*, making a total of 105,524*l.* The refuse destructor cost 20,000*l.*, isolation hospital 16,000*l.*, new stables 18,000*l.*, electricity works (land, buildings, and cooling tanks) 31,556*l.*, tram shed, Blundell-street (land and buildings), 9,982*l.*, tram shed, Marton, 8,761*l.*, abbatoirs (land and buildings) 14,002*l.*, police station (land and buildings) 20,860*l.*, rebuilding of St. John's Market 11,458*l.*, library and gymnasium (land and buildings) 4,845*l.*, free library, Lytham-road, 700*l.*, Town Hall (land and buildings) 81,504*l*, fire station 9,289*l.*, making a total of 352,481*l.* spent on public buildings. The Mayor then alluded to the erection of public conveniences in various parts of the town. The one in Talbot-square cost 1,518*l.*, that in Church-street 973*l.*, Station-road 1,581*l.*, and the one at the Gynn 1,346*l.*, making a total of 5,418*l.* The estimated cost of public conveniences was 3,000*l.* for the one in West-street, 2,121*l.* for the one near the Wellington Hotel, and 1,800*l.* for the one near the Manchester Hotel, making a total of 6,921*l.* The grand total was 369,820*l.*—The President (Mr. Shepherd), in responding, said the importance of the building industry needed no other exemplification than the figures which had been given by the Mayor. The members then adjourned to the Hotel Metropole, where the general meeting was held. On Thursday an excursion was made to Lake Windermere.

THE SLATE TRADE.—The mineral statistics for 1904, lately issued, show a tonnage of 566,733, or an increase of about 34,000 tons, as compared with 1903. On the other hand, the Customs return show a much larger falling off in the importation of foreign slates, so it is evident Welsh slates are regaining their hold of the market, and the reduced prices of the current year will further assist in doing so. Demand is gradually improving for better class slates.

Legal.

THE WIDENING OF PICCADILLY.

IN the Chancery Division, on the 15th inst., Mr. Justice Swinfen Eady had before him a motion in the action of Pescod *v.* The Mayor and Corporation of Westminster.

Mr. Macmorran, K.C. (with him Mr. Chubb) said the action was brought against the defendants for an injunction to restrain them from proceeding till the trial or further order upon a notice given under Michael Angelo Taylor's Act, dated June 10 last, served upon the plaintiff requiring him to treat for the sale of his premises, No. 20, Piccadilly. There was an alternative, which was not now important, that defendants should be restrained from selling any part of the premises to any other person before it had been offered to the plaintiff in pursuance of the provisions of the Act. But that was not now important, as under the agreement the premises had been obtained subject to the rights of pre-emption. His case was, that it was not necessary to take the whole of the plaintiff's premises. They were willing that the portion necessary for widening should be acquired, but they said that the rest of the house was important to them and they desired to retain it. He contended that the plaintiffs were not entitled to take the whole house. Under an agreement of lease, dated March, 1887, the shop and premises were demised at a rent of 750*l.* a year. In 1890 that lease was assigned to the plaintiff for the remainder of the term. The plaintiff had divided them into two parts, having on the ground floor two shops with a total frontage of about 16 ft. One had been underlet at a rental of 400*l.* a year, and the other had been retained by the plaintiff for the purposes of his business, viz., that of a tailor. A strip some 18 ft. deep was needed for the Piccadilly widening, and they said that what was left was sufficient for their purposes. Although the Corporation of Westminster were nominally the defendants, the real defendants were the London County Council and a Hotel Syndicate, who desired to erect a large hotel over the whole site. The defence was that it was impossible to pull down the front strip and leave the back standing. But his answer to that was that they were willing to take the risk, and he submitted it was a matter for them.

His lordship said he thought it was a matter which should be decided promptly.

Mr. Eve, K.C., who represented the defendants, agreed.

In the result his lordship made an order for delivery of the statement of claim by the 19th instant, and for the action to go in the paper for trial on the 26th inst. In the meantime there would be cross-undertakings.

Order accordingly.

ACTION AGAINST THE MANCHESTER CORPORATION.

In the Court of Appeal, consisting of the Master of the Rolls and Lords Justices Romer and Mathew, the hearing was concluded on the 13th inst., of the case of A. H. Midwood & Co. *v.* The Lord Mayor, etc., of the City of Manchester, on the application of the defendants for judgment or new trial on appeal from verdict and judgment at trial before Mr. Justice Laurance and a special jury in the King's Bench Division.

The action was brought by the plaintiff to recover from the defendants 677*l.* 4s. 6d., an agreed amount for damages sustained by the plaintiffs owing to their stock-in-trade, merchandise, and other property at No. 81, Fountain-street, Manchester, being destroyed or damaged by fire on May 24, 1903. The plaintiffs' case was that the fire was caused by the fusing of one of the electric cables or mains belonging to the defendants, the undertakers for the supply of electricity for lighting purposes in Manchester. The wires were laid in bitumen, and the fusing of the wires caused the bitumen to be volatilised, gas being generated, which resulted in an explosion and the fire. The plaintiffs contended that the defendants' system of electric lighting constituted a nuisance, as being a system which was rendered dangerous by reason of the difficulty of locating a leakage, and that the fusing of the wires was due to the defendants' negligence. The defence was that the Corporation were empowered and compelled by their provisional order of 1890 to supply electrical energy for lighting purposes within Manchester, and that the system they adopted was the best system, and was approved by the regulations of the Board of Trade, and further, that the fusing of the mains was not due to their negligence. It appeared that for the purposes of giving a constant pressure in the mains which was necessary for the proper supply of electricity in the area of supply the entire system was linked together, and energy was supplied to the mains by means of feeders. The plaintiffs allege that this linked-up system made it more difficult to locate a leakage than it did in a divided system, but this the defendants denied. At the trial the jury, in answer to specific questions left to them, found that the system adopted by the defendants constituted a nuisance by causing danger to persons having premises adjacent to the mains; that the defendants had been guilty of negligence in their adoption of the method of localising and dealing with faults, and that when the defendants became aware of the fault they did not deal with it for the purpose of preventing fire in a reasonable and proper manner. The learned judge entered judgment on these findings for the plaintiffs for the agreed amount of damages, and the defendants now appealed on the grounds that the verdict was against the weight of the evidence, and that the learned judge had misdirected the jury.

Mr. Fletcher Moulton, K.C., Mr. Macmorran, K.C., and Mr. J. W. Gordon appeared for the appellants, and Sir Edward Clarke, K.C., Mr. Bousfield, K.C., and Mr. Wood Hill for the respondents on the appeal.

In the result their lordships held that what had occurred was a nuisance, and that no express authority was conferred by the provisional order upon the defendants authorising them to allow a leakage so as to cause an explosion, and that the learned judge would not have been justified in withdrawing the question of negligence from the jury.

The appeal was accordingly dismissed with costs.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

14,057 of 1904.—M. R. Green: *Safety Lock or Fastening Device for Windows.*

A safety lock or fastening device for windows, consisting of a metal base plate having an upper arm and a lower arm integral therewith. The base plate is securely fastened to the meeting rail of the bottom sash in such manner that the upper arm lies closely to the stile or side plate of the upper sash whilst the lower arm lies parallel with and adjacent to the interior bead of the window frame. Upon the stile of the upper sash, and also upon the interior bead of the frame, metal face plates are fastened, the whole arrangement being such that by means of suitable pins or screws, which pass through conveniently-placed holes in the arms and also through the face plates, the upper and lower sash are fastened together and are also fastened rigidly to the window frame.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

14,467 of 1904.—F. Beck: *Heating by Means of Hot Water and Apparatus therefor.*

This invention relates to a process for increasing the circulation of water employed as a vehicle for heat. The invention consists of a hot-water boiler, the upper outlet from which extends to the upper part of a pocket from the bottom of which also extends the heating pipes, the said pocket being completely filled with water when the heat is moderate, and its upper part being provided with a U-shaped pipe, extending first downwards and then rising to the bottom of an expansion vessel open to the air, isolated from the circulation, and placed at any height above the heating circuits; the said expansion vessel thus formed constitutes the only outlet, towards which the water can be displaced by the formation of steam, the said pocket being placed so as to cause the steam to become motionless in the boiler, and a heat regulator operating under the action of a displacement of water.

13,834 of 1904.—O. Thor: *Concrete and Similar Pillars and the like.*

This invention relates to the construction of concrete or similar pillars of any desired profile and cross section, either solid or hollow. The essential feature of the invention is that iron or other metal bars, rods, wires or the like are employed, of any cross section running longitudinal of the pillar, near the surface thereof, and similar members running crosswise, so that a kind of frame-work is formed, for the purpose of imparting strength.

17,563 of 1904.—J. S. Wilkes: *Separators and Grinding Mills used in the Treatment of Clay or like material.*

According to the invention the separator consists of an inclined revolving screen with differently meshed portions, the central shaft of which screen carries a series of bosses, radial arms, and rings, and the latter parallel spacing bars for the several divisions of the separator, and also internal breaking-up longitudinal bars or plates.

17,831 of 1904.—P. Zipperling: *Butt Hinges.*

A butt hinge for windows, doors, and the like, consisting in the combination with a movable hinge plate having a conical hinge socket, of a stationary hinge plate, and of a spindle for connecting the two hinge plates, the spindle having a conical part fitting into the conical hinge socket, and a quadrangular part within a correspondingly formed socket of the stationary hinge plate, and means for pressing together the two conical parts.

18,054 of 1904.—J. Levin: *An Electric Device for Indicating the Unauthorised Opening of Door Locks, Window Fasteners, and the like.*

An electric device for indicating the unauthorised opening of door locks, window fasteners, and the like, characterised by the feature that an insulating plate is arranged inside the bolt bracket, and directly opposite the bolt, upon which plate is fixed, by means of one of the two screw bolts serving as terminals, a suitably-shaped bracket, against the free end of which rests the free extremity of a spring fixed upon the said plate by the second screw bolt or terminal, and adapted to be displaced or brought out of contact with the said bracket when the bolt is pushed in.

18,376 of 1904.—F. Walton: *Manufacture of Floor Cloth, Wall Coverings, or the like.*

The manufacture of floor cloth, wall coverings, or the like, consisting in mixing pieces or "tessels" of the material in the "scratched" form in the required variety of colours to suit those of the desired pattern, passing the same between two or more sets or pairs of rollers, of which the first set or pair revolves at a greater speed than the ensuing set or sets, then cutting the sheet into comparatively small pieces and supplying the latter to a mixing and conveying device, with or without further addition of other quantities of "scratched" material, forming this mixture into a sheet of the required thickness, and then cutting it into the pieces or tessels of the desired size and shape.

148 of 1905.—H. H. Lake (R. H. Schalkenbach): *Glazed Structures.*

A glazed structure comprising a resilient cap, means for supporting in cushioned relation sheets of glass upon astragal supports, means for retaining tapped or super-imposed sheets of glass in fixed cushioned relation, means for supporting in cushioned relation abutting sheets of glass arranged in the same plane, and means secured to the eaves of the structure adapted to hold the astragal supports in place.

751 of 1905.—T. S. Fildes: *Sheet-Iron Cisterns or Tanks.*

A sheet metal cistern or tank with its top edges extended to form flanges, and each of said flanges folded inwards, downwards, and below or round a flat metal stiffening bar, or one of the members of a flat metal stiffening frame, and the several flanges and bars mitred at the corners of the cistern and joined to each other by riveted corner plates.

8,506 of 1905.—J. Cable: *Casement Windows.*

A window in either wood, metal, or wood and metal, formed by a pair of casements hinged together and secured to the frame by small bolts sliding in screws at the head and sill, along which the casements travel during the process of opening and closing, the said casements opening downwards. When open they can be adjusted as to make the outer face of the glass accessible for cleaning purposes from the room itself, and by the same movement the ventilation can be regulated as desired, and when closed the inside ends fit into grooves at either jamb, thus rendering the window both draught and weather proof.

25,385 of 1904.—J. Wilkinson: *Material for the Paving of Roadways and Side Walks, and for other purposes.*

This invention has for its object to produce a pavement that shall be water-proof throughout, durable, and of a non-slipping character. In the application of the invention a given quantity of bitumen is melted. To the said bitumen, in a molten or plastic condition, is added five times its quantity of granite. Three parts of the granite are ground before adding to the bitumen to the extent sufficient to permit of passing through a sieve having apertures of a quarter to three-eights of an inch diameter; the remaining two parts are reduced to a powdered condition. The completed mixture is cast in suitable moulds to form blocks of convenient size for transit. For use for paving it is melted down, and can then be spread over the road.

25,472 of 1904.—N. M. Imarra: *Manufacture or Construction of Artificial Posts.*

An artificial post constructed of a plurality of metal strips disposed at or near the outside, a plurality of discs or the like at intervals in the edges of which the said metal strips are placed, metal mesh work or open work outside said strips, and cement, concrete, or mortar on the outside of said metal mesh work or open work, and binding with same, and arms or supports extending out from same, formed of strips of mesh work and cement, concrete or mortar, or the like, and forming an integral part with the post.

25,520 of 1904.—F. de Rare: *Apparatus for Heating and Circulating Air.*

This invention relates to apparatus for heating and circulating air, consisting in combination of a fan and a tubulated box in which circulate the products of combustion from any hearth or fireplace while the air to be heated is driven through the tubes which connect the sides of the box.

26,148 of 1904.—T. Aitken: *Apparatus for Distributing Liquids on Roads.*

A vehicle for forcing surface dressing into roads, consisting in the combination with a liquid supply tank and a receiver into which air and liquid are pumped under considerable pressure, of a regulating valve between the supply tank and the pump to control the proportion of air and liquid admitted to the receiver.

27,326 of 1904.—W. Richards: *"Key" or Rough Backing to Glass or Pottery Tiles for the Purpose of Affixing Same to Bricks, Walls, and other surfaces.*

This invention relates to the production upon glass or pottery tiles of "key" or rough surfaces which are primarily intended to serve as an adhesive means for attachment of such glass or pottery tiles to bricks, walls, or other similar surfaces. In carrying out the invention a paste is made, composed of cement, powdered pumice stone, zinc white or oxide of zinc, borax, sal-ammoniac. This mixture is brought into almost a semi-fluid state by means of water and spirits of salts, to which are added granulated zinc and oxide of iron. For the purpose of producing the "key" on the glass, the paste is applied with a brush, and, while in a plastic state, crushed glass, marble, or the like, is sprinkled thereon, which penetrates into and adheres to the paste without the aid of any firing agent.

1,944 of 1905.—A. B. Ohman: *Detachable Strainer for Sink or Drain Funnels.*

A strainer for sinks formed with an open top and having its bottom, which is in the form of a steep, perforated cone, so placed that it is clean washed by the direct impact of the water from the tap each time the tap is turned on, so that the conical bottom is kept clean of solid matter, a channel formed between the lower part of the cone and the lower part of the side wall of the strainer and perforated with holes of smaller size than the openings situated higher up so that the solid subtances will be better retained in the strainer.

2,424 of 1905.—L. Schlentheim: *Mosaic Pavings.*

This invention relates to mosaic pavings by means of which splitting is obviated. In carrying

the invention into effect, instead of laying the mosaic in continuous sheets, it is divided into sections, which sections are separated from one another by strips of elastic mineral material such as asphalt. The said strips extend from the bottom or other part of the concrete or other bedding employed vertically upwards to the surface of the paving so that the upper surface of the said strips constitute a part of the treading surface of the paving.

17,736 of 1904.—M. LAU: *Apparatus for Fixing Plaster Work to Ceilings.*

An apparatus for applying moulded plaster work to ceilings, comprising a frame or support, a platform mounted on the support and adapted to support the plaster mould and means for raising and lowering the platform on its support to first apply the plaster to the ceiling and then withdraw the platform and plaster mould.

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SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

July 5.—By BLACKFORD & SON (at Dulverton).
Yeo Mill, Devon.—"Ruggley Pit" and "Higheton Farm," 109 a., f. £1,600
"Coombe and Bidbrook Farm," 151½ a., f... 2.559
"Overwell Farm," 65 a., f. 1,190
"Guphill Farm," 113½ a., f. 1.270
Four freehold cottages 455

By PROTHEROE & MORRIS (on the Estate).
Hockley, Essex.—Main rd., four plots of land, f. 148
Main rd., two blocks of land, f. 133

July 6.—By MADDISON, MILES, & MADDISON (at Harleston).
Mendham, Suffolk.—"Botwright's Farm," 32 a. 0 r. 26 p., f. and c. 370
"Footpath Meadow," 2 a. 3 r. 4 p., f. 168

July 8.—By G. DURRANT & SONS (at Norwich).
Burgh St. Peter, Norfolk.—"Burgh Hall Farm," 221 a. 2 r. 12 p., f. and c. 3,500
Toft Monks, etc., Norfolk.—Freehold and copyhold farm, 128 a. 3 r. 18 p. 1,500
Haddiscoe, Norfolk.—Freehold marsh land, 4 a. 0 r. 26 p. 105

By WRIGHT & SCRUBY (at Cambridge).
Willingham, Cambs.—Two enclosures, 12 a. 1 r. 16 p., f. 570
Residence, Homestead, and 0 a. 1 r. 27 p., f. 330
Garden Grounds, 13 a. 1 r. 5 p., f. 1,350
Over, Cambs.—A bare fen, 4 a. 1 r. 21 p., f... 185

July 10.—By J BAKER, COOKE, & STANDEN.
Edgware, Middlesex.—Deansbrook-lane, "Orange Hill" and 10 a. 1 r. 36 p., f., y.r. 300*l.* 6,500
Deansbrook-la., enclosures of land, 25 a. 1 r. 9 p., f. 3,100
Deansbrook-la., enclosure of pasture, 10 a., f and c. 600
Deansbrook la., freehold building estate, 21 a. 4,000
Deansbrook-la., enclosures of building land, 25 a. 6,300
Deansbrook-la., a freehold site, 1½ a..... 600
1 and 2, Deansbrook-villas, area ¾ of an acre, f., y.r. 72*l.* 950

By E. HILL CLARKE.
Mitcham.—3 and 4, Glebe-villas, u.t. 64½ yrs., g.r. 18*l.*, y.r. 71*l.* 605

July 10.—By FULLER, MOON, & FULLER.
Godstone, Surrey.—Tilburstow Hill, a freehold site, 4 a. 200
Tandridge, Surrey.—Main rd., a freehold site, 7 a. 400

By A. SAVILL & SONS.
Waltham Cross, Herts.—Main rd., "Waltham House" and 9 a. 0 r. 31 p., f., p. 4,100

July 11.—By DEBENHAM, TEWSON, & CO.
Cheam, Surrey.—Sandy-la., "Mayfield" and 1 a. 2 r. 16 p., u.t. 31 yrs., g.r. 25*l.*, p... 1,000

By DUNN, SOMAN, & COVERDALE.
Mill Hill.—1 and 2, The Firs, f., y.r. 70*l.* 800
New Barnet, Herts.—1 to 4, Elizabeth Cottages, f., w.r. 93*l.* 12s. 850

By HAMPTON & SONS
Notting Hill.—38, 40, and 42, Portobello-rd. (stabling), f., p. 1,100

By HOOKER & WEBB.
Hackney.—133 and 135, Hertford-rd., u.t. 45 yrs., g.r. 30*l.*, y.r. 62*l.* 800

By KROENIG & CO.
Hendon.—Canfield-parade, a freehold shop plot 260

By ROGERS, CHAPMAN, & THOMAS.
Wandsworth.—61, Bolingbroke-gr., f., y.r. 38*l.* 575

By A. J. BURROWS (at Ashford).
Kennington, etc., Kent.—Portions of the Kennington Hall Estate, 381 a. 2 r. 2 p., f. (in lots), including the Manors of Raymonds and Falconhurst 9,425

By SLEE, SON, & CARDEN (at Masons' Hall Tavern).
Strand (No. 354).—The "Lyceum Tavern," u.t. 44½ yrs., y.r. 200*l.*, with Goodwill .. 14,160

July 12.—By BROAD, WILTSHIRE, & PENNY.
Islington.—39, High-st. (s.) and warehouse in rear, beneficial leases for 15½ and 6 yrs., y.r. 340*l.*, with goodwill, fixtures, etc. .. £280
Clerkenwell.—58, Exmouth-st. (s.), beneficial lease for 7½ yrs., y.r. 84*l.*, with fixtures, etc. 590
Stoke Newington.—188 and 188A, High-st. (s.), beneficial lease for 8 yrs., y.r. 220*l.*, with goodwill, fixtures, etc. 550
Tottenham.—467 and 469, High-rd. (s.), beneficial lease for 9½ yrs., y.r. 155*l.*, with goodwill, fixtures, etc. 160
St. Albans, Herts.—27, Market-place (s.), beneficial lease for 17 yrs., y.r. 100*l.*, with goodwill, fixtures, etc. 165

By CARTWRIGHT & ETCHES.
Balham.—4, Ryde Vale-rd., u.t. 69 yrs., g.r. 15*l.*, e r. 80*l.* 600

By DANN & LUCAS.
South Darenth, Kent.—"The Jolly Millers," p.h., with land adjoining, f., p. 5,800

By DOLMAN & PEARCE.
Haverstock Hill.—4, Parkhill-rd Studios, u.t. 45 yrs., g.r. 14*l.*, y.r. 50*l.* 425

By HIND & SONS.
Forest Hill.—10 and 12, Elsinore-rd., u.t. 78 yrs., g.r. 11*l.* 10s., y.r. 64*l.* 650

By HUMBERT & FLINT (first day).
Marlow, Bucks.—Riversi ie f.g.r. 25*l.*, reversion in 77 yrs. 650
3 and 4, High-st, f., y.r. 54*l.* 925
6, High-st. (s.), f., y.r. 30*l.* 585
24, High-st., f., y.r. 24*l.* 460
27, 28 and 29, High-st. (s.), f., y.r. 98*l.* 2,320
High-st., "Fryer's Dining Rooms," f., y.r. 25*l.* 515
West st., two freeh old shops and houses, y.r. 46*l.* 900
West-st., freehold residence and shop, y.r. 37*l.* 645
West-st, five named residences, y.r. 87*l.* 10s. 1,630
West-st, four freehold cottages, w.r. 29*l.* 0s. 8d. 320

By C. H. MASON.
Harlesden — 17 to 23, 29 to 49 (odd), 47A and 49A, High-st. (s.) f. 28,675
Wood Green.—Lordship-la, f.g. rents, 48*l.* 12s. reversion in 58 yrs. 1,320
18, 24, 26, and 40, Lordship-la., f., y.r. 124*l.* 1,520
Lordship-la., "Lordship Nursery," f., p. .. 250
Hendon.—Edgware-rd., "Elmdale," and 1 a. 3 r 8 p., f., y.r. 65*l.* 2,150
Edgware-rd, a freehold building plot..... 250
Springfield-ter., f g.r. 18*l.*, reversion in 76½ yrs. 450

By DOUGLAS YOUNG & CO.
Battersea.—32, Auckland-rd., f., y.r. 36*l.* 440
Peckham.—82 and 84, Peckham-rd., f., y.r. 88*l.* 1,420
Clapham.—King's-rd., "Oakfield," u.t. 20 yrs, g.r. 25*l.*, e r. 100*l.* 450

By CRONKS' (at Sevenoaks).
Sevenoaks, Kent.—70, High-st., shop, blacksmith's forge, and two cottages, f., y.r. 85*l.* 1,450
72, 74, and 76, High-st. (s.), f., y.r. 160*l.* .. 2,360

By G. LOVEITT & SONS (at Nuneaton).
Bedworth, Warwick.—Freehold brick works, 19 a. 2 r. 32 p. (as a going concern) 3,800

By A. J. BURROWS (at Sandwich).
Sandwich, Kent.—Five enclosures of market garden ground, 18 a. 1 r. 3 p., f. (in lots) 965

July 13.—By BAKER & BAKER.
Horley, Surrey.—"Edmondbury Farm," 22 a. 2 r. 26 p., f, p. 1,975

By CHESTERTON & SONS.
Kensington.—Cottesmore-gardens, f.g r. 7*l.*, reversion in 28 yrs. 1,260
Eldon-rd., f.g. rents 18*l.* 12s., reversion in 27 yrs. 1,715
Victoria-rd., f.g.r. 12*l.*, reversion in 26 yrs 1,590
Stanford-road, f.g. rents 31*l.*, reversion in 39 yrs. 1,685

By DRAWBRIDGE & ANSELL.
Hailsham, Sussex.—The Horsebridge Flour Mills, area 4½ acres, f. (as a going concern) 3,000
"Myrtle Cottage," f., p. 275

By NEWBON, EDWARDS, & SHEPHARD.
Tottenham Court-road.—12, Warren-st., f., y.r. 42*l.* 870
Hampstead-road.—81, Stanhope-st., u.t. 15½ yrs., g.r. 8*l.*, y.r. 43*l.* 230
Islington.—12, Cleveland-rd., u.t. 46½ yrs., g.r. 6*l.*, y.r. 40*l.* 380
58 and 60, St. Paul-st., u.t. 21½ yrs., g.r. 8*l.* 4s., y.r. 74*l.* 460
Hoxton.—29, Napier-st., u t. 33 yrs., g.r. 16*l.* 10s., y.r. 32*l.* 125
Barnsbury.—41, College-st., u.t. 10½ yrs., g.r. 7*l.*, e.r 36*l.* 135
Stoke Newington.—Victoria-gr., l.g.r. 16*l.*, u t. 39 yrs., g.r. 8*l.* 13s. 110
Clissold-rd., f.g. rents 228*l.* 12s. 6d., u.t. 43 yrs., g.r. 83*l.* 2,350
Tottenham.—40, St. Paul's-rd., f., y.r. 26*l.* .. 210
Bow.—Coutts-rd., f.g.r. 7*l.* 9s., reversion in 47 yrs. 155
St. Ann's-rd., f.g.r. 13*l.* 11s. 6d., reversion in 47 yrs. 295
St. Duncan's-rd., f.g.r. 28*l.*, reversion in 47 yrs. 610
Homerton.—Templar-rd., f.g.r. 4*l.*, reversion in 59 yrs. 105
Victoria Park.—10 and 12, Brookfield-rd., f., y.r. 80*l.* 955
119 and 120, Cadogan-ter., f., y.r. 58*l.* 710

By STIMSON & SONS.
Clapham.—36, Cedars-rd., u.t. 53¾ yrs., g r. 20*l.*, e.r. 80*l.* 305
Balham.—1, Harberson-rd., u.t. 80 yrs., g.r. 5*l.* 5s., w.r. 36*l* 8s. 215
Walworth.—3 to 40 (even), Thurlow-st., u t. 29½ yrs., g r 25*l.*, w.r. 183*l.* 6s. 910
51 and 53, Thurlow-st., u t. 45 yrs., g.r. 10*l.*, w.r. 74*l.* 2s. 440
47 and 49, Inville-rd., u.t. 45 yrs., g.r. 10*l.*, w.r. 78*l.* 470
Willesden.—9, 10, and 11, Taylors-la. (s.), u.t. 97 yrs., g.r. 19*l.* 10s., y.r. 113*l.* 780

By FAREBROTHER, ELLIS, & CO.
Merton.—Kingston-rd., f.g.r. 20*l.*, reversion in 94 yrs. £500
Dupont-rd., f g.r. 40*l.*, reversion in 93 yrs. 925
Shepherd's Bush.—Goldhawk-rd., two corner building sites, area 13,600 ft., f. 2,400

By HUMBERT & FLINT (second day).
Marlow, Bucks.—Quolting-sq., two freehold cottages, w.r. 16*l.* 13s. 8d. 135
Oxford-rd., warehouse or store room f, y.r. 7*l.* 140
Oxford-rd., 17 freehold cottages, w.r. 209*l.* 4s. 2,535
Oxford-rd., house, smithy, and cottage, f., y.r. 32*l.* 500
West-st, seven freehold shops, f., y.r. 90*l.* 2s. 1,640
West-st., shop, workshop, stabling, etc., f., y.r. 50*l.* 1,020
Spital-st., shop, slaughter-house, and cottage f., y.r. 37*l.* 615
Spital-st. three freehold houses and shops, y.r. 41*l.* 4s. 535
Dean-st., a freehold house, y.r. 10*l.* 160
Dean-st., The "Chairmakers' Arms," p.h, f., y.r. 12*l* 295
Dean-st., a freehold cottage, q.r. 13*l.* 125
Trinity-la., three freehold cottages, w.r. 25*l.* 7s 325
West-st., three freehold cottages, w.r. 16*l.* 18s. 205
West-st. (off), two freehold enclosures, 2 a. 1 r. 15 p. 270

By HARRIE STACEY (at Redhill).
Redhill, Surrey.—Ladbroke-rd., a plot of land, f. 320
Lynwood rd., two plots of freehold land .. 335
Earlswood, Surrey.—Earlsbrook-rd., two plots of land, f... 180
Reigate, Surrey.—8 Holmesdale-rd., f., p. .. 500

July 14.—By FURBERS'.
Marylebone.—10, Buckingham-st., u.t. 6 yrs, g.r. 32*l.*, w.r. 150*l.* 16s. 120
150, Great Titchfield-st., u t. 7 yrs., g.r. 36*l.*, w.r. 150*l.* 16s. 260
170, Great Titchfiel l-st., u t. 24 yrs., g.r. 26*l.*, w.r 132*l.* 12s. 510
Clerkenwell.—144, Clerkenwell-rd. (s.), 2A and 3A, Back-hill (s.) 1 to 12, Albion-buildings, u.t. 6 yrs., g.r. 225*l*, y.r. 481*l.* 2s. 100

By G. HEAD & CO.
Brondesbury.—45, Exeter-rd., u.t 992 yrs., g r. 14*l.*, p. 950

By HUNTER & HUNTER.
Shepherd's Bush.—33, Gayford-rd., f., w.r. 33*l.* 16s. 305
Harlesden.—33, Casselden-rd., f.g.r. 6*l.* 6s., reversion in 85 yrs. 155

By PROTHEROE & MORRIS.
Leytonstone.—1, Wadley-rd., f., w.r. 28*l.* 12s. 210

By REYNOLDS & EASON.
Putney.—117 to 127 (odd), Putney Bridge-rd. (s.), f., e.r. 350*l.* 2,750
Clapton.—20 and 22, Nightingale-rd., u.t. 55 yrs, g r. 8*l.*, y.r. 92*l.* 795
Wrotham, Kent.—"Bishop's Lodge Temperance Hotel," with shop, stabling, etc., f., y.r. 52*l.* 675

By SALTER, REX, & CO.
Hampstead.—54, 55, 56, and 57, Oakley-sq., u.t. 46½ yrs., g.r. 28*l.*, y.r. 285*l.* 2,390

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

MEETINGS.

SATURDAY, JULY 22.

Northern Architectural Association.—Annual Excursion—Barnard Castle and Raby Castle.

TUESDAY, JULY 25.

Junior Institution of Engineers.—Visit of inspection, New Vauxhall Bridge Works. 6.30 p.m.

SATURDAY TO MONDAY, JULY 29-31.

Institute of Sanitary Engineers, Ltd.—Summer Outing, to Southampton.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

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PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.			
Hard Stocks.	1	10	0	per 1000	alongside, in river.	
Rough Stocks and Grizzles	1	6	6	,,	,,	,,
Facing Stocks ...	2	2	0	,,	,,	,,
Shippers	2	2	0	,,	,,	,,
Flettons	1	7	0	,,	at railway depôt.	
Red Wire Cuts ...	1	14	0	,,	,,	,,
Best Fareham Red	3	12	0	,,	,,	,,
Best Red Pressed Ruabon Facing	5	0	0	,,	,,	,,
Best Blue Pressed Staffordshire ...	4	2	6	,,	,,	,,
Do. Bullnose	4	7	6	,,	,,	,,
Best Stourbridge Fire Bricks.....	4	0	0	,,	,,	,,
GLAZED BRICKS.						
Best White and Ivory Glazed Stretchers	12	0	0	,,	,,	,,
Headers	11	0	0	,,	,,	,,
Quoins, Bullnose, and Flats.....	16	0	0	,,	,,	,,
Double Stretchers	19	0	0	,,	,,	,,
Double Headers...	16	0	0	,,	,,	,,
One Side and two Ends	19	0	0	,,	,,	,,
Two Sides and one End	20	0	0	,,	,,	,,
Splays, Chamferred, Squints	20	0	0	,,	,,	,,
Best Dipped Salt Glazed Stretchers, and Header	12	0	0	,,	,,	,,
Quoins, Bullnose, and Flats.....	14	0	0	,,	,,	,,
Double Stretchers	15	0	0	,,	,,	,,
Double Headers...	14	0	0	,,	,,	,,
One Side and two Ends	15	0	0	,,	,,	,,
Two Sides and one End	15	0	0	,,	,,	,,
Splays, Chamferred, Squints	14	0	0	,,	,,	,,
Second Quality White and Dipped Salt Glazed	2	0	0	,,	less than best.	

	s.	d.		
Thames and Pit Sand.....	7	0	per yard,	delivered.
Thames Ballast.....	5	9	,,	,,
Best Portland Cement	27	0	per ton,	,,
Best Ground Blue Lias Lime	20	0	,,	,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime.....12s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

	s.	d.		
BATH STONE—delivered on road waggons, Paddington Depôt	1	6½	per ft. cube.	
Do. do. delivered on road waggons, Nine Elms Depôt	1	8½	,,	,,
PORTLAND STONE (20 ft. average)—				
Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf...	2	1	,,	,,
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf...	2	2½	,,	,,

	s.	d.		
Ancaster in blocks	1	11	per ft. cube,	deld. rly. depôt.
Beer ,, ...	1	6	,,	,,
Greenshill ,, ...	1	10	,,	,,
Darley Dale in blocks...	2	4	,,	,,
Red Corsehill ,,	2	5	,,	,,
Closeburn Red Freestone	2	0	,,	,,
Red Mansfield ,,	2	4	,,	,,
YORK STONE—*Robin Hood Quality.*				
Scappled random blocks	2	10	,,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	per ft. super.	,,
6 in. rubbed two sides ditto, ditto	2	6	,,	,,
3 in. sawn two sides slabs (random sizes)	0	11½	,,	,,
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	,,	,,
1½ in. to 2 in. ditto, ditto	0	6	,,	,,
HARD YORK—				
Scappled random blocks	3	0	per ft. cube,	,,
6 in. sawn two sides, landings to sizes (under 40 ft. super.)	2	8	per ft. super.	,,
6 in. rubbed two sides ditto	3	0	,,	,,
3 in. sawn two sides (slabs random sizes)	1	2	,,	,,
2 in. self-faced random flags	0	5	,,	,,

	s.	d.		
Hopton Wood (Hard Bed) in blocks	2	0	per ft. cube.	deld. rly. depôt.
,, ,, ,, 6 in. sawn both sides landings	2	7	per ft. super.	deld. rly. depôt.
,, ,, ,, 3 in. sawn both sides random slabs.....	1	0	,,	,,
,, ,, ,, 2 in. do.	0	8½	,,	,,

SLATES.

in.	in.	£	s.	d.		
20 × 10 best blue Bangor		13	2	6	per 1000 of 1200 at	r. d.
20 × 12	,, ,,	13	17	6	,,	,,
20 × 10 first quality	,,	13	0	0	,,	,,
20 × 12	,, ,, ,,	13	15	0	,,	,,
16 × 8	,, ,, ,,	7	5	0	,,	,,
20 × 10 best blue Portmadoc		12	12	6	,,	,,
16 × 8	,, ,,	6	12	6	,,	,,

SLATES (*continued*).

in.	in.	£	s.	d.		
20 × 10 best Eureka unfading green .		15	17	6	per 1000 of 1200 at	r. d.
20 × 12	,, ,,	18	7	6	,,	,,
18 × 10	,, ,,	13	5	0	,,	,,
16 × 8	,, ,,	10	5	0	,,	,,
20 × 10 permanent green		11	12	6	,,	,,
18 × 10	,, ,,	9	12	6	,,	,,
16 × 8	,, ,,	6	12	6	,,	,,

TILES.

	s.	d.		
Best plain red roofing tiles .	42	0	per 1000 at	rly. depôt.
Hip and Valley tiles ...	3	7	per doz.	,, ,,
Best Brosely tiles.....	50	0	per 1000	,, ,,
Do. Ornamental tiles	52	6	,,	,, ,,
Hip and Valley tiles ...	4	0	per doz.	,, ,,
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000	,, ,,
Do. Ornamental do	60	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	0	,,	,, ,,
Best Red or Mottled Staffordshire do. (Peakes).....	51	9	per 1000	,, ,,
Do. Ornamental do.....	54	6	,,	,, ,,
Hip tiles	4	1	per doz.	,, ,,
Valley tiles	3	8	,,	,, ,,
Best "Rosemary" brand plain tiles.....	48	0	per 1000	,, ,,
Best Ornamental tiles	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	8	,,	,, ,,
Best "Hartshill" brand plain tiles, sand faced.	50	0	per 1000	,, ,,
Do. pressed.....	47	6	,,	,, ,,
Do. Ornamental do	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in	13	10	0	15	0	0
Deals: best 3 by 9.....	13	0	0	14	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	0	0	12	0	0
Battens: best 2½ by 6 and 3 by 6 ..	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best.		
Battens: seconds	0	10	0	,, ,, ,,		
2 in. by 4 in. and 2 in. by 6 in....	9	0	0	10	0	0
2 in. by 4½ in. and 2 in. by 5 in....	8	10	0	9	10	0
Foreign Sawn Boards—						
1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
¾ in.	1	0	0	,,		
	At per load of 50 ft.					
Fir timber: best middling Danzig or Memel (average specification)	4	10	0	5	0	0
Seconds	4	0	0	4	10	0
Small timber (8 in. to 10 in.) ...	3	12	6	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	3	10	0
Swedish balks	2	10	0	3	0	0
Pitch-pine timber (30 ft. average)	3	5	0	3	15	0
JOINERS' WOOD.	At per standard.					
White Sea: first yellow deals, 3 in. by 11 in	24	0	0	25	0	0
3 in. by 9 in.	22	0	0	23	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	18	0	0
Second yellow deals, 3 in by 11 in.....	18	10	0	20	0	0
,, ,, 3 in. by 9 in.	17	10	0	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	10	0	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	12	0	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	0	0	22	10	0
Do. 3 in. by 9 in.....	18	0	0	19	10	0
Battens.....	13	10	0	15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0	17	0	0
Do. 3 in. by 9 in.....	14	10	0	16	0	0
Battens.....	11	0	0	12	10	0
Third yellow deals, 3 in. by 11 in.	13	0	0	14	0	0
Do. 3 in. by 9 in.....	12	10	0	14	0	0
Battens.....	10	0	0	11	0	0
White Sea and Petersburg :—						
First white deals, 3 in. by 11 in.	14	10	0	15	10	0
,, ,, 3 in. by 9 in.	13	10	0	14	10	0
,, ,, battens	11	0	0	12	0	0
Second white deals, 3 in. by 11 in.	13	10	0	14	10	0
,, ,, 3 in. by 9 in.	12	10	0	13	10	0
,, ,, battens	10	0	0	11	0	0
Pitch-pine: deals.....	16	10	0	20	0	0
Under 2 in. thick extra	0	10	0	1	0	0
Yellow Pine—First, regular sizes	44	0	0	upwards.		
Oddments	32	0	0	,,		
Seconds, regular sizes.....	33	0	0	,,		
Yellow Pine oddments	28	0	0	,,		
Kauri Pine—Planks, per ft. cube .	0	3	6	0	5	0
Danzig and Stettin Oak Logs—						
Large, per ft. cube	0	3	0	0	3	6
Small ,, ,, ...	0	2	6	0	2	9
Wainscot Oak Logs, per ft. cube.	0	5	0	0	5	6
Dry Wainscot Oak, per ft. sup. as inch	0	0	8	0	0	9
¾ in. do. do.	0	0	7	—		
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch ...	0	0	9	0	1	0
Selected, Figury, per ft. sup. as inch	0	1	6	0	2	6
Dry Walnut, American, per ft. sup. as inch	0	0	10	0	1	0
Teak, per load	17	0	0	22	0	0
American Whitewood Planks, per ft. cube.....	0	4	0	0	5	0
Prepared Flooring, etc.—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	13	6	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	0	15	0

WOOD (*continued*).

Prepared Flooring, etc. (*continued*)—	Per square. £	s.	d.	£	s.	d.
1¼ in. by 7 in. white, planed and matched	0	15	0	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	0	13	6
1 in. by 7 in. do. do.	0	14	0	0	18	0
¾ in. by 7 in. white do. do.	0	10	0	0	11	6
1 in. by 7 in. do. do. do.	0	12	9	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, £	s.	d.	Railway Vans, £	s.	d.
Rolled Steel Joists, ordinary sections	6	0	0 ...	6	15	0
Compound Girders, ordinary sections	7	10	0 ...	8	10	0
Steel Compound Stancheons ...	9	2	6 ...	10	12	6
Angles, Tees and Channels, ordinary sections	7	10	0 ...	8	10	0
Flitch Plates	7	15	0 ...	8	5	0
Cast Iron Columns and Stanchions including ordinary patterns	6	12	6 ...	7	15	0

METALS.

	Per ton, in London. £	s.	d.	£	s.	d.
IRON—						
Common Bars	7	0	0 ...	7	10	0
Staffordshire Crown Bars, good merchant quality.....	7	10	0 ...	8	0	0
Staffordshire "Marked Bars"	9	10	0 ...	—		
Mild Steel Bars.....	8	5	0 ...	8	15	0
Hoop Iron, basis price	8	15	0 ...	9	0	0
,, ,, Galvanized	16	10	0 ...	—		
(*And upwards, according to size and gauge.)						
Sheet Iron, Black—						
Ordinary sizes to 20 g.	9	0	0 ...	—		
,, ,, 24 g.	10	0	0 ...	—		
,, ,, 26 g.	11	15	0 ...	—		
Sheet Iron, Galvanised, flat, ordinary quality—						
Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g.....	12	10	0 ...	—		
Ordinary sizes to 22 g. and 24 g.	13	0	0 ...	—		
26 g.	14	0	0 ...	—		
Sheet Iron, Galvanised, flat, best quality—						
Ordinary sizes to 20 g.	15	10	0 ...	—		
,, ,, 22 g. and 24 g.	16	0	0 ...	—		
,, ,, 26 g.	17	10	0 ...	—		
Galvanised Corrugated Sheets—						
Ordinary sizes 6 ft. to 8 ft. 20 g.	12	10	0 ...	—		
,, ,, 22 g. and 24 g.	13	0	0 ...	—		
,, ,, 26 g.	13	15	0 ...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11	0	0 ...	—		
Best Soft Steel Sheets, 22 g. & 24 g.	12	0	0 ...	—		
,, ,, ,, 26 g.....	13	10	0 ...	—		
Cut nails, 3 in. to 6 in.....	9	0	0 ...	9	10	0
(Under 3 in., usual trade extras.)						

LEAD, &c.

	Per ton, in London. £	s.	d.	£	s.	d.
LEAD—Sheet, English, 3lb. and up	16	7	6 ...	—		
Pipe in coils	16	17	6 ...	—		
Soil pipe	19	7	6 ...	—		
Compo pipe.....	19	7	6 ...	—		
ZINC—Sheet—						
Vieille Montagne .....ton	30	5	0 ...	—		
Silesian.....	30	0	0 ...	—		

		£	s.	d.		
COPPER—						
Strong Sheet.....per lb.		0	0	11	...	—
Thin ,, ...	,,	0	1	0	...	—
Copper nails	,,	0	0	11	...	—
BRASS—						
Strong Sheet.....	,,	0	0	10	...	—
Thin ,, ...	,,	0	0	11	...	—
TIN—English Ingots	,,	0	1	4½	...	—
SOLDER—Plumbers'	,,	0	0	6½	...	—
Tinmen's.....	,,	0	0	8	...	—
Blowpipe.....	,,	0	0	9	...	—

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2¾d.	per ft. delivered.
,, fourths.....	2d.	,, ,,
21 oz. thirds	3¾d.	,, ,,
,, fourths.....	3d.	,, ,,
26 oz. thirds	4¾d.	,, ,,
,, fourths.....	3¾d.	,, ,,
32 oz. thirds	5¾d.	,, ,,
,, fourths.....	5d.	,, ,,
Fluted Sheet, 15 oz.....	3½d.	,, ,,
,, 21 oz.....	4½d.	,, ,,
½ Hartley's Rolled Plate	2d.	,, ,,
⅓ ,, ,, ,, ...	2½d.	,, ,,
¼ ,, ,, ,, ...	2½d.	,, ,,

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	1	6
,, ,, ,, in barrels	,,	0	1	10
,, ,, ,, in drums.....	,,	0	2	0
Boiled ,, ,, in pipes	,,	0	1	11
,, ,, ,, in barrels	,,	0	2	0
,, ,, ,, in drums.....	,,	0	2	2
Turpentine, in barrels	,,	0	3	9
,, in drums.....	,,	0	3	11
Genuine Ground English White Lead	per ton	19	15	0
Red Lead, Dry	,,	19	5	0
Best Linseed Oil Putty	per cwt.	0	6	6
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak.....	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	0
Fine Elastic Carriage.....	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	18	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan.....	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	6
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BARNSLEY.—For erecting stabling and business premises in Langdale-road. Messrs. Wade & Turner, architects, 10, Pitt-street, Barnsley:—

Mason and Bricklayer: S. Dryden, 118, Blenheim-road	£570 14
Joiner: J. Smith, Newton-street	130 0
Slaters: Pickles Bros., Leeds	37 0
Plasterer: J. Richardson, Dewsbury	16 0
Plumber and Glazier: B. Denison, Barnsley	22 0
Painter: J. Snowden & Son, Barnsley	9 0

BEVERLEY.—For erecting an infant school for 250 scholars in Walkergate, for the Education Committee. Messrs. Hawe & Foley, architects, North Bar-street, Beverley:—

Calvert & Sons	£3,690 0 0	F. Sweeting	£3,295 0 0
J. R. Foley	3,550 0 0	J. Constable, Beverley*	3,006 0 0
R. Pope	3,345 19 4		
G. P. Watson	3,323 0 0		

BECKENHAM.—For making-up roads (Cedars-road, Tremaine-road, Tudor-road, and Samos-road), for the Urban District Council. Mr. J. A. Angell, Surveyor, Beckenham:—

—	Cedars-road.	Tremaine-road.	Tudor-road.	Samos-road.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Woodhams & Sons	507 19 10	232 16 8	302 15 5	204 9 9
W. Pearce, Davids-road, Forest Hill	501 4 11*	233 8 1	287 10 7	207 17 4
Free & Sons	550 17 0	257 3 2	304 1 7	227 12 7
Mowlem & Co., Grosvenor-wharf, Westminster	501 7 8	225 17 5*	276 9 5*	193 14 8*

BENFIELDSIDE.—For constructing sewers, etc., for the Urban District Council of Benfieldside. Mr. T. Knox, Surveyor. Quantities by surveyor:—

J. Allison	£138 15 0
C. Westgarth, Durham-road, Blackhill*	69 11 10

BILLINGHAY.—For water supply, for Sleaford Rural District Council. Mr. W. B. Marsden, Surveyor, 74, Southgate, Sleaford:—

Barnes & Sharpe, Sleaford,* for boring.
[At a schedule of prices.]

BRENTFORD.—For 500 yds. of blue Guernsey granite, for the Urban District Council. Mr. Nowell Parr, Surveyor, Clifden House, Boston-road, Brentford:—

	Price per cubic yd. s. d.		Price per cubic yd. s. d.
A. & F. Manuelle	14 11	J. Hall	13 7
W. Griffiths & Co.	14 9	G. Le Maitre, Westminster*	13 7
Fry Bros.	14 8		
J. Mowlem & Co.	14 0		

CARDIFF.—For the erection of new infants' department and additions to the boys' and girls' departments, new latrines, etc., at St. Mary's National Schools, Bute-terrace, Cardiff, for the Rev. Gilbert Heaton. M.A. Messrs. Veall & Sant, architects:—

Cox & Bards	£2,698 0	F. Small	£2,366 0
J. Allan & Son	2,661 15	T. Bevan	2,330 0
J. Gibson	2,598 10	F. C. Williams	2,320 0
Shepton & Son	2,580 0	Knox & Wells	2,277 0
D. Davies	2,577 0	W. T. Morgan	2,275 0
G. H. Elkington	2,479 0	Melhuish Bros.	2,248 0
E. R. Evans & Bros.	2,426 0	W. Symonds & Co.*	2,218 0
G. Beames	2,398 0		

[All of Cardiff, except T. Bevan and G. H. Elkington, Penarth.]

CHELMSFORD.—For the erection of two dwelling-houses. Mr. A. F. Ginn, architect, Tonbridge:—

F. Weight	£1,459	A. Moss & Co.	£985
F. Johnson	1,357	J. Gowers*	960
H. Potter & Son	1,165		

COWPEN.—For 100 lineal yds. of 24-in. pipe sewer, etc., for the Urban District Council. Mr. R. Grieves, Surveyor to the Council, Cowpen:—

McLaren & Co.	£180 4	McLaren & Son, Gosforth*	£129 4
G. E. Simpson	145 14		
J. Robson	136 4		

DOUGLAS (Cork).—For erecting a residence, for Mr. W. McBride. Messrs. W. H. Hill & Son, architects, 28, South-Mall, Cork:—

F. Dolan, builder, Queenstown* £1,190

EAST HAM.—For the erection of shop and private house at East Ham, Essex. Mr. H. Riches, architect, 3, Crooked-lane, King William-street, London, E.C.:—

J. T. Robey	£918 0	A. W. Derby	£875 0
T. Osborn & Sons	899 0	Clemens Bros.*	840 10

EVESHAM (Worcestershire).—For erecting boundary walls and fences and a tool-house adjoining cemetery in parish of Great and Little Hampton, for the Burial Board of All Saints and Saint Lawrence, Evesham. Mr. R. Webb, Surveyor, High-street, Evesham:—

T. & C. Panter	£361 16 3	F. Walters, Evesham*	£282 17 4
Espley & Co., Ltd.	334 0 0	J. E. Waite	245 0 0
A. Cliff & Co.	291 15 0	G. Emery	163 13 6

FERBANE (Ireland).—For erecting a medical officer's residence and out offices, for the Birr Guardians. Messrs. Moynan & Gill, architects, Nenagh:—

J. Burke	£1,472	G. Cussen	£1,364
J. Hickey & Sons	1,398	D. P. Hoctor, Birr*	1,300

GAINSBOROUGH.—For erecting an elementary school to accommodate 934 children, for the Lindsey County Council Education Committee. Messrs. Scorer & Gamble, architects, Bank-street-chambers, Lincoln. Quantities by architects:—

F. M. Thompson & Son	£10,821 0 0	H. S. & W. Close	£9,180 0 0
Pattinoon & Son	9,880 0 0	C. A. Leverton	9,082 0 0
S. F. Halliday	9,770 0 0	W. H. Maxey & Sons	8,980 0 0
Mawer Bros.	9,725 15 4	C. Sprakes & Sons	8,975 0 0
J. Cracknell	9,715 0 0	F. Scarborough	8,764 0 0
Kettering Co-operative Builders, Ltd.	9,542 0 0	F. Barlow & Co.	8,750 0 0
J. Cooper & Son	9,490 0 0	J. Lewin	8,700 0 0
Oak Building Co.	9,449 0 0	T. Fish & Sons	8,591 0 0
J. Guttridge	9,391 0 0	C. Wright	8,550 0 0
T. Cuthbert	9,370 0 0	A. J. Elmes	8,449 10 0
J. Fidler	9,358 0 0	T. Salmon & Co.	8,444 11 0
F. Messom	9,300 0 0	H. Arnold & Son	8,150 0 0
W. Scott	9,271 0 0	Moss & Sons, Ltd., 39, Baxter-gate, Loughborough*	7,860 0 0
D. Gill & Son	9,207 0 0		

GLASGOW.—For foundations and superstructure of new north block of the Royal Infirmary, for the Managers. Mr. J. Miller, architect, 15, Blythswood-square, Glasgow:—

J. Paterson & Son Ltd., 610, Pollokshaws-road, Glasgow* £8,951 14 3

HENDON.—For making-up Heriot-road, Hendon, for the Urban District Council. Mr. J. Slater Grimley, Engineer, Council Offices, Hendon, N.W.:—

A. B. Champniss	£1,154 9 0	R. Ballard, Ltd., Childs Hill*	£1,067 0 0
T. Adams	1,121 9 2		

HEREFORD.—For building the chancel, organ-chamber, and vestry, Holy Trinity Church. Messrs. Nicholson & Hartree, architects and surveyors, Hereford:—

J. S. Kimberley	£3,454 0 0	Vestry work omitted for the present.
Broad & Co., Ltd.	3,177 0 0	
Treasure & Son	2,886 0 0	
W. Powell	2,749 0 0	
Lewis & Co.	2,720 0 0	
H. Smith	2,700 0 0	
Beavan & Hodges	2,652 10 0	
C. Cooke	2,524 0 0	

HOVE.—For wood-paving works, Church-road (between George-street and Sackville-road), for the Corporation. Mr. H. H. Scott, Borough Surveyor, Town Hall, Hove:—

W. Griffiths & Co., 35-39, Hamilton-house, Bishopsgate-street Without, London, E.C.* £3,260

HOVE.—For new street works, Pembroke-avenue, for the Town Council. Mr. H. H. Scott, Borough Surveyor, Town Hall, Hove:—

J. Parsons & Sons, 118, Church-road, Hove* .. £369

HOVE.—For new street works, Addison-road, for the Town Council. Mr. H. H. Scott, Borough Surveyor, Town Hall, Hove:—

W. A. McKellar, 136, Church-road, Hove* .. £355

KIRKCALDY.—For the erection of an elementary school to accommodate 1,000 children, for the Kirkcaldy Burgh School Board (exclusive of furniture, painting, and electric light). Mr. D. Forbes Smith, architect, Kirkcaldy. Quantities by the architect:—

Masons: Balfour Bros., Sinclairtown*	£3,598 0 0
Joiners: Bogie & Nicoll, Kirkcaldy*	1,894 0 0
Plumbers: J. Wood & Son, Kirkcaldy*	466 18 11
Plasterers: W. & J. Easton, Kirkcaldy*	366 0 0
Slaters: Currie & Cant, Kirkcaldy*	264 0 0
Heating and Ventilating: Mackenzie & Moncur, Edinburgh*	582 10 0
Stonework: Thomson Bros., Kirkcaldy*	397 14 5
Tiler: D. Ryrie, Edinburgh*	144 17 10
Glaziers: Cunningham & Co., Edinburgh*	53 12 0

LAUGHTON-EN-LE-MORTHEN.—For constructing a gritstone culvert over Eel's Mire Dike, for the Rotherham and Kiveton Park District Councils. Mr. R. Bradbury, District Surveyor, 29B, High-street, Rotherham:—

W. Craig	£468 18 6	J. Cooper	£364 0 0
R. Snell	375 0 0		

[The Council have decided to carry out the work themselves at a cost of £300, and have not accepted any of the above tenders.]

LEE.—For kerbing, channelling, and metalling roadway and paving footpaths with artificial stone of part of Butterfield-street, for the Lewisham Borough Council:—

J. Mowlem & Co., Ltd., Grosvenor-wharf, Westminster* £198

LEEK.—For extensions to sewage disposal works for the Urban District Council. Mr. W. E. Beacham, Engineer and Surveyor, Town Hall, Leek:—

G. Lawson	£5,311 9 10	F. Barke	£4,052 10 0
H. Ashley	4,696 4 2	F. Marland	4,012 0 0
E. Taylor	4,586 8 10	S. Salt	3,967 8 0
F. H. Macdonald	4,488 12 8	Sanders & Torrance	3,962 15 7
A. Jewell	4,336 1 0	G. Holloway	3,800 0 0
Sutherland & Thorpe	4,161 5 8	A. J. Cottle	3,772 14 0
J. Owens	4,299 0 0	Barke Bros., Bradford*	3,601 12 10

LONDON.—For painting Norwood Schools, for the Lambeth Guardians. Messrs. Woodward, Brooks, & Latter, surveyors, 69, Kennington-oval, S.E.:—

H. Bragg & Sons, Robsart-street, Brixton* .. £287

LONDON.—For the internal painting at the Norwood schools, for the Lambeth Board of Guardians:—

		Time for Completion. Weeks
W. Loweth & Sons	£625 0 0	10
H. G. Ambrose	525 0 0	6
Court & Son	511 0 0	6
C. E. Gibbings & Co.	459 0 0	6
W. Chuter & Sons	444 1 8	12
M. Batchelor	398 0 0	10
R. Iles, Ltd.	378 16 3	4
Hammond & Son	351 0 0	8
F. J. Senn	339 10 0	4
W. A. King	328 0 0	8
Woollaston Bros.	325 10 0	6
J. Mitchell	325 0 0	9
C. A. Adams, Jun.	324 18 6	6
W. Young	310 0 0	5
E. Mills	308 10 0	6
H. Bragg & Sons, Robsart-street, Brixton*	287 0 0	5

LONDON BOARD OF EDUCATION TENDERS.

Battersea, The "Latchmere" School (New Boilers).

W. Simmons	£349 0	W. G. Cannon & Sons	£199 0
C. Kite & Co.	260 0	Brightside Foundry & Engineering Co., Ltd.	197 0
J. Yetton & Co.	257 0	Wenham & Waters, Ltd.	185 0
G. Davis	236 0	Bates & Sons, Ditchingham-st., Sheffield*	182 0
Paragon Heating Co.	230 13		
Palowkar & Sons	202 0		
Stevens & Sons	200 0		
Wontner-Smith, Gray, & Co.	199 0		

Bermondsey, Old Kent-road School for Deaf Children (Playshed and Seats).

Rice & Son	£112 0 0	W. Eyre	£66 0 0
W. Sayer & Son	110 0 0	W. Downs	65 0 0
Lathey Bros.	99 0 0	W. V. Goad, 241, Camberwell-road*	60 0 0
Galbraith Bros.	85 17 6		
J. Marsland & Sons	66 0 0		

Clapham, Honeywell-road School (New Boilers).

W. G. Cannon & Sons	£299 0	T. S. Knight & Sons	£209 0
J. C. Christie	228 10	G. & E. Bradley	209 0
J. Yetton & Co.	226 0	G. Davis, 28, Silver-street, Kensington*	198 0
Strode & Co.	221 0		

Clapham, Aristotle-road (Metalwork Centre, etc.).

Enness Bros.	£1,350	Thompson & Beveridge	£1,167
F. & H. F. Higgs	1,343	J. Appleby & Sons	1,167
R. A. Jewell	1,276	T. D. Leng	1,135
F. G. Minter	1,273	E. Triggs	1,117
Lathey Bros.	1,271	J. & M. Patrick	1,098
W. Smith & Sons	1,251	W. Johnson & Co., Ltd.	1,076
J. Marsland & Sons	1,231	Rice & Son	1,053
J. Smith & Sons, Ltd.	1,223	Turnbull & Son	1,039
General Builders, Ltd.	1,188	J. Garrett & Son, 17, Balham-hill*	1,002

[The Architect's (Education) estimate comparable with these tenders is £1,110.]

Fulham, Childerley-street (Alterations in Laboratories, etc.)—For alterations to the chemical and physical laboratories, demonstration room, etc., at the Childerley-street School, Fulham.

[The work to be executed by Messrs. W. Johnson & Co., Ltd., the contractors who erected the new school, as an addition to their contract. Estimate, £518.]

Fulham, Star-lane School (Rebuilding Boundary Wall).

Lathey Bros.	£133 0	R. S. Ronald, St. Ann's-hill, Wandsworth*	£88 0
W. R. & A. Hide	117 19		
E. B. Tucker	96 0		

Hampstead, Kingsgate-road (Playsheds).

Marchant & Hirst	£64 0 0	Chinchen & Co.	£45 10 0
W. Densham & Sons	58 0 0	Cowley & Drake, Dean-road, Willesden Green*	35 0 0
J. Peattie	54 0 0		
General Builders, Ltd.	49 15 0		

Islington, W., Westbourne-road (Partitions, etc.).

F. W. Harris & Co., Ltd.	£170	L. H. & R. Roberts	£144
G. S. S. Williams & Son	150	E. Spencer & Co.	138
W. Martin	148	J. Grover & Son	132
H. Bouneau	145	Mattock & Parsons, 165, Gray's-inn-road*	119

St. Pancras, N., Holmes-road (Enlarging Playground, etc.).

W. Densham & Sons	£477 10	C. Wall, Ltd.	£336 0
General Builders, Ltd.	469 0	Mattock & Parsons	293 0
J. Peattie	398 0	Aldridge & Son, 78, Harlesden-road, Willesden Green*	233 19
Stevens Bros.	378 0		
Marchant & Hirst	347 0		

Southwark, Lant-street School (Alterations).

Rice & Son	£129	L. Whitehead & Co.	£117
Maxwell Bros., Ltd.	125	J. Marsland & Sons, 1, York-street, Walworth*	110
J. C. Chalkley	125		
W. V. Goad	124		
T. D. Leng	123		
H. Line	119		

Walworth, Sayer-street School (Covered Playground).

Lathey Bros.	£419	Rice & Son	£278
J. F. Ford	379	Maxwell Bros., Ltd.	277
Galbraith Bros.	335	J. Garrett & Son	274
T. Lapthorne & Co.	334	L. Whitehead & Co., Ltd., Portland-pl.	263
H. Bragg & Sons	302		
W. V. Goad	299		
J. Marsland & Sons	295		

Woolwich, Eglinton-road School (Additional Boiler and Heating Apparatus).

J. Yetton & Co.	£300 0	J. Defries & Sons, Ltd.	£250 0
J. Jones & Sons	265 0	Strode & Co.	249 0
Lancashire Heating Co.	260 0	Wontner-Smith, Gray, & Co.	242 10
Brightside Foundry & Engineering Co., Ltd.	256 0	Russell & Co., 42, Berwick-street, Oxford-street*	229 0
Palowkar & Sons	253 0		

Rotherhithe, Keeton's-road School (New Boiler and Hot-water Apparatus).

W. Simmons ..	£440 6 0	Wenham & Waters, Ltd., Paragon Works, Croydon*	£167 0 0
J. Yetton & Co.	220 0 0		
J. C. Christie..	216 0 0		
Turner & Co...	195 18 6		
Palowkar & Sons.....	194 0 0		

Whitechapel, Old Castle-street School (Additional Cloakrooms, etc.).

Staines & Son ..	£197 0	W. H. Lascelles & Co.	£170 0
Vigor & Co.	196 15	A. E. Symes, Carpenter's-road, Stratford*	168 0
W. Lawrence & Son	185 0		
J. T. Robey	178 0		
Parrott & Isom..	171 0		

PAINTING OF SCHOOLS DURING THE SUMMER HOLIDAYS, 1905.

Bermondsey, Lazon-street (Iron Building, Painting Interior and Exterior of Cookery and Laundry Centre).

W. Sayer & Son	£46 15
W. H. King, 39A, Inville-road, Walworth*.	38 10

Bethnal Green, N.E., Chisenhale-road (Painting Interior).

W. Shurmur & Sons, Ltd.	£448 0	H. Willmott	£388 0
Chessum & Sons..	434 0	H. Bouneau	325 0
W. Silk & Son ..	408 10	Langdon & Clark, 3, Grosvenor-road, Ilford* ..	304 0
R. Woollaston & Co.	397 0		

Bethnal Green, S.W., Rochelle-street (Cleaning Interior of Infants' School and Painting Exterior of Boys', Girls', and Infants' Schools).

C. R. Price	£371 10	Langdon & Clark	£290 0
A. E. Symes	329 0	J. Haydon & Sons, Durham Works, Teesdale-street*	289 12
Vigor & Co.	325 15		
H. Bouneau	309 0		

Bethnal Green, S.W., Turin-street (Painting Interior).

McCormick & Sons	£599 0	J. Haydon & Sons	£485 12
C. R. Price.....	578 15	Langdon & Clark	417 5
J. Grover & Son	549 10	Vigor & Co., King-street, Poplar*..	412 0
H. Bouneau	500 0		
H. Willmott	487 0		

Bethnal Green, S.W., Wood-close (Painting Interior and Exterior).

W. Shurmur & Sons, Ltd.	£405 0	Langdon & Clark	£350 0
H. Bouneau	376 15	Woollaston Bros.	325 0
J. Haydon & Sons	362 10	R. Woollaston & Co., 22, Lacey-street, Bow* ..	315 0
A. E. Symes	361 0		

Bow and Bromley, High-street (Painting Interior).

A. J. Sheffield	£385 0 0	Vigor & Co...	£312 10 0
Barrett & Power	370 0 0	R. Woollaston & Co.....	299 10 0
W. Gray & Co.	363 9 10	Langdon & Clark, 3, Grosvenor-road, Ilford*	278 12 0
A. E. Symes..	355 0 0		
W. Silk & Son	349 10 0		
H. Bouneau..	345 0 0		
A. W. Derby	323 15 0		

Bow and Bromley, Malmesbury-road (Painting Interior of Boys', Girls', and Infants' Departments, and Interior and Exterior of Art Centre).

A. E. Symes	£569 0	R. Woollaston & Co.	£420 0
W. H. Lascelles & Co.	499 0	Barrett & Power	413 0
A. W. Derby	488 0	H. Bouneau, Victor-place, Old Ford-road*	407 10
J. Chessum & Sons	479 0		
Vigor & Co.	478 0		
Langdon & Clark	473 0		

Bow and Bromley, Roman-road (Cleaning Interior).

H. Bouneau.....	£381
Barrett & Power, St. Thomas's Works, Hackney*	350
Langdon & Clark	341

Bow and Bromley, St. Leonard's-road (Painting Interior).

A. E. Symes	£473 0	Langdon & Clark	£377 0
R. Woollaston & Co.	470 0	H. Bouneau	366 10
A. W. Derby	430 0	Woollaston Bros., 22, Rockmead-road, South Hackney*	332 0
J. Chessum & Sons	429 0		
Vigor & Co.	387 0		

Brixton, Hackford-road (Cleaning Interiors of School and P.T. Centre).

R. Harding & Son	£470 0 0	L. Whitehead & Co.	£334 0 0
F. J. Ford	427 0 0	Crabb & Sons..	327 0 0
Rice & Son ..	403 0 0	Maxwell Bros., Ltd., 310, Brixton-road*	327 0 0
H. Bragg & Sons	402 10 3		
W. Read.....	384 0 0		
J. Garrett & Son	336 0 0		

City of London, Swan-street (Painting Interior).

J. Haydon & Sons	£247 17	Langdon & Clark	£231 0
Barrett & Power	238 0	Harrison & Spooner	227 0
Belcher & Co., Ltd.....	232 13	Vigor & Co., King-street, Poplar*..	197 0

Clapham, Ponton-road, Day Industrial School (Cleaning Interior).

H. Bragg & Sons.....	£250 13 4	J. Garrett & Son	£100 0 0
J. R. Sims	127 10 0	Whitehead & Co., Ltd., Portland-place North, Clapham-road*	91 0 0
Rice & Son....	127 0 0		
E. B. Tucker..	122 0 0		
W. Johnson & Co., Ltd.....	113 0 0		
Maxwell Bros., Ltd.....	108 0 0		

Clapham, Tennyson-street (J.M. School Painting Interior).

Lathey Bros.	£323 0	Maxwell Bros., Ltd.....	£199 0
T. Lapthorne & Co.	253 5	J. Garrett & Son, 17, Balham-hill*	189 0
W. Johnson & Co., Ltd.....	252 0		
Rice & Son.....	229 0		

Deptford, Childerick-road (Painting Interior of Old and New Portions).

T. G. Sharpington	£564 0 0	W. Sayer & Son	£373 0 0
Holliday & Greenwood, Ltd.	469 0 0	R. Woollaston & Co.....	367 0 0
H. L. Holloway .	448 0 0	H. Groves.....	359 0 0
T. D. Leng	385 0 0	W. J. Howie, 37, Blackheath-rd.*	348 0 0
S. Musgrove	376 7 6		

Deptford, The "Deptford Park." (Cleaning Interior and Painting Exterior).

H. L. Holloway..	£656 0	W. Sayer & Son	£461 0
W. Hayter & Son	508 10	T. D. Leng, Evelyn-street, Deptford*	424 0
W. J. Howie	500 0		
J. C. Chalkley ..	493 0		
H. Groves	477 0		

Dulwich, Heber-road (Painting Interior).

T. G. Sharpington	£795 0	W. Sayer & Son .	£539 0
A. Black & Son..	624 0	Maxwell Bros., Ltd.....	539 0
H. Line	576 0	C. G. Jones, 109, Ewart-road, Forest Hill* ..	420 15
W. Johnson & Co., Ltd.....	571 0		
Grace & Marsh ..	551 0		

Finsbury, C., Winchester-street (Painting Interior).

L. H. & R. Roberts	£556 15 0	W. Chappell ..	£480 0 0
J. Grover & Son	530 10 0	G. Kirby.....	470 0 0
Patman & Fotheringham, Ltd.....	502 0 0	Marchant & Hirst	454 0 0
F. W. Harris & Co., Ltd.....	487 0 0	W. Reason....	425 7 6
		Stevens Bros., 1A, Yonge-park, Holloway* ..	417 0 0

Finsbury, E., Martyrs' Memorial (Painting Interior and Exterior).

L. H. & R. Roberts	£127 15	W. H. Lascelles & Co., 121, Bunhill-row*.....	£114 10
J. Grover & Son	118 10		
W. Sayer & Son..	117 0		

Finsbury, E., Moreland-street (Painting Interior).

L. H. & R. Roberts	£418 0	Patman & Fotheringham, Ltd. ..	£359 10
Stevens. Bros....	397 15	Vigor & Co.	346 15
W. H. Lascelles & Co.	388 10	E. Triggs	344 0
W. Reason.....	374 5	J. Grover & Son, Wilton Works, Islington*	341 0

Fulham, Lillie-road (Painting Interior).

C. Johnson.....	£679 0	J. & M. Patrick ..	£431 0
Lole & Co.	622 0	F. Chidley & Co., Ltd.....	342 0
W. Hornett	597 0	General Builders, Ltd., Wharf-road, Nottinghill*.....	298 15
Holloway Bros. (London), Ltd.	453 0		
Spencer, Santo, & Co., Ltd.....	448 0		

Fulham, Munster-road (Painting Interior).

A. Leather	£774 0	J. & M. Patrick	£404 0
C. Johnson	679 0	F. Chidley & Co., Ltd.....	311 0
Hudson Bros. ..	595 0	General Builders, Ltd., Wharf-road, Nottinghill*.....	287 0
Lole & Co.....	576 0		
C. Leather & Sons	560 10		
Spencer, Santo & Co., Ltd.	419 0		

Fulham, William-street (Painting Interior and Exterior of Higher Grade School).

W. Hornett	£228 10	F. Chidley & Co., Ltd., 56, Lydford-road, Paddington* ..	£144 0
Bristow & Eatwell	201 10		
J. Peattie	188 10		

Greenwich, Calvert-road (Painting Interiors of Girls' and Infants' Departments).

W. Banks	£189 10 0
R. Woollaston & Co.	188 4 0
W. J. Howie	160 0 0
W. Hayter & Son, 62, Banning-street, East Greenwich*	159 17 6

Greenwich, Dreadnought-street (Painting Interior).

T. G. Sharpington	£447 0	W. J. Howie	£289 0
H. Groves	329 0	C. G. Jones	271 17
R. Woollaston & Co.	310 0	W. Hayter & Son, 62, Banning-st., East Greenwich*	249 10
W. Banks	306 15		

Greenwich, Grove-street (Painting Interior).

T. G. Sharpington	£575 0 0	W. Sayer & Son	£352 0 0
H. L. Holloway	465 0 0	S. Musgrove ..	349 1 0
T. D. Leng....	390 0 0	W. J. Howie ..	343 0 0
R. Woollaston & Co.	374 0 0	W. Hayter & Son, 62, Banning-street, East Greenwich*..	314 19 6
H. Groves	359 0 0		

Hackney, N., Princess May-road (Painting Interior and Exterior).

W. Silk & Son ..	£495 10	F. Bull	£357 15
Woollaston Bros.	460 0	C. R. Price	313 0
Stevens Bros. ..	432 0	J. Stewart, 174, West Green-rd., South Tottenham*	298 0
Barrett & Power	428 0		
J. Grover & Son	427 0		
L. H. & R. Roberts	416 0		
J. Chessum & Sons	401 0		

Hackney, S., Lauriston-road (Painting Interior and Exterior).

W. Shurmur & Sons, Ltd.	£484 0	J. Chessum & Sons	£408 0
R. Woollaston & Co.	456 0	H. Willmott	388 0
W. H. Lascelles & Co.	447 0	H. Bouneau	345 10
Woollaston Bros.	410 0	Langdon & Clark	342 0
W. Silk & Son ..	409 10	Barrett & Power, St. Thomas' Works, Hackney*	335 0

Hackney, S., London Fields (Painting Interior).

W. Shurmur & Sons, Ltd.	£539 10	J. Chessum & Sons	£424 0
W. Silk & Son ..	515 10	Langdon & Clark	410 0
A. W. Derby	505 0	Barrett & Power	399 0
H. Bouneau	486 5	J. Grover & Son	397 0
F. Bull	437 10	J. Stewart	382 15
W. H. Lascelles & Co.	431 0	H. Willmott, The Triangle, Hackney*	357 0

Haggerston, Haggerston-road (Painting Interior).

Stevens Bros..	£506 0 0	Vigor & Co. ..	£426 0 0
W. H. Lascelles & Co.	482 0 0	Barrett & Power	410 0 0
L. H. & R. Roberts	452 0 0	J. Chessum & Sons, Monier-road, Bow*..	343 12 6
McCormick & Sons	442 0 0	Langdon & Clark	341 15 0
J. Grover & Son	430 0 0		

Hammersmith, Cobbold-road (Painting Interior and Exterior).

C. Johnson.....	£620 0	Chinchen & Co...	£334 0
G. H. Sealy	534 0	H. Bouneau	317 0
General Builders, Ltd.....	384 10	W. Brown & Sons, 195, Uxbridge-road*	296 16
W. R. & A. Hide	374 10		
Bristow & Eatwell	347 0		

Hammersmith, Kenmont-gardens (Painting Interior of old Portion and Interior and Exterior of Enlargement).

J. M. French & Co..	£413 3 10	Aldridge & Son	£320 0 0
W. R. & A. Hide	345 0 0	Bristow & Eatwell	277 0 0
Marchant & Hirst	336 0 0	F. Chidley & Co., Ltd., 56, Lydford-rd., Paddington*	226 0 0
Chinchen & Co.	333 10 0		

Holborn, Princeton-street (Painting Interior).

W. Hornett	£451	Mattock & Parsons	£382
T. L. Green	431	Marchant & Hirst ..	378
W. H. Lascelles & Co.	416	W. Reason, 47, Rosebery-avenue*	303
G. Foxley.....	410		

Islington, E., Canonbury-road (Painting Interior).

J. Barton & Co...	£1,740 0	Patman & Fotheringham, Ltd.. ..	£403 0
C. R. Price.....	469 0	G. Kirby.....	398 10
McCormick & Sons	446 0	J. Grover & Son..	376 0
L. H. & R. Roberts	416 0	H. Bouneau, 1A and 2, Royal Victor-place, Old Ford*	345 10
W. H. Lascelles & Co.	409 10		

Islington, E., Harvist-road (Cleaning Interior).

Bristow & Eatwell	£155 0 0	J. Stewart	£118 0 0
G. Kirby.....	123 14 0	Bate Bros., 29, Hornsey-rise*	92 12 6

Islington, E., Newington-green (Painting Interior of School and Cleaning Interiors of Centres).

W. Shurmur & Sons, Ltd.	£572 10	Patman & Fotheringham, Ltd. ..	£475 0
C. R. Price.....	512 8	J. Grover & Son .	445 0
J. Stewart	496 0	H. Bouneau, Royal Victor-place, Old Ford-road*	398 10
L. H. & R. Roberts	489 0		
W Silk & Son ..	481 10		

Islington, S., Offord-road (P.T. School, Painting Interior and Exterior).

Patman & Fotheringham, Ltd..	£449 0	McCormick & Sons	£368 5
W. H. Lascelles & Co.	444 0	J. Grover & Son	349 10
F. W. Harris & Co., Ltd.....	395 0	Stevens Bros. ..	346 0
W. Reason.....	390 15	W. Chappell	340 0
G. Kirby.....	385 10	J. Stewart, 174, West Green-rd., South Tottenham*	324 0
Mattock & Parsons	371 0		

Islington, S., Station-road (Painting Interior).

McCormick & Sons..	£451	Marchant & Hirst .	£387
Patman & Fotheringham, Ltd.....	396	J. Grover & Son....	377
A. Porter	391	Stevens Bros.	338
Mattock & Parsons..	389	W. Reason, 47, Rosebery-avenue*	269

Kennington, Vauxhall-street (Painting Interior and Exterior).

H. Bragg & Sons ..	£1,084 17 11	W. Smith & Son	£423 0 0
J. J. Richards	746 15 0	J. R. Sims..	422 0 0
W. Hornett.	629 0 0	L. Whitehead & Co., Ltd., Portland-place North, Clapham-road*	420 0 0
T. Lapthorne & Co.....	561 13 6		
Martin, Wells, & Co., Ltd.	489 0 0		
J. F. Ford ..	478 0 0		
Rice & Son	456 0 0		
W. Sayer & Son	452 0 0		

Lewisham, Hazelbank-road (Iron Buildings, Painting Interior and Exterior).

H. L. Holloway ..	£265 0	H. Leney & Son, 111, Anerley-road, Anerley*	£196 0
A. Black & Son ..	265 0	C. G. Jones	180 13
J. & C. Bowyer ..	245 0		
C. J. Jerrard	198 0		

Lewisham, Holbeach-road (Painting Interior and Exterior of Main School and Iron Buildings).

T. G. Sharpington ..	£658	H. Groves.....	£525
J. & C. Bowyer	592	W. J. Howie, 37, Blackheath-road*	517
A. Black & Son	570		
C. G. Jones	547		

Lewisham, Lewisham Bridge (Painting Interior and Exterior).

T. G. Sharpington	£795 0	H. Groves	£414 0
H. L. Holloway..	593 0	C. G. Jones, 109, Ewart-road, Forest Hill* ..	395 9
W. J. Howie	509 0		
W. Hayter & Son	474 10		
W. Young	430 10		

Lewisham, Sydenham-hill-road (Painting Interior and Exterior of Infants' School).

T. G. Sharpington	£158 0	W. Young, 1, Apsley-road, South Norwood*	£103 10
Grace & Marsh ..	123 0	C. G. Jones.....	102 1
H. Leney & Son	117 0		
C. J. Jerrard	112 0		
J. & C. Bowyer..	109 0		

Marylebone, E., Barrow-hill-road (Painting Interior).

T. Cruwys ..	£435 0 0	General Builders, Ltd. ..	£283 15 0
J. Martin, French, & Co.	397 13 0	W. Brown & Sons, 195, Uxbridge-road*	223 15 0
J. Peattie	364 17 6		
Thompson & Beveridge ..	285 0 0		
W. Chappell ..	285 0 0		

Newington, W., Faunce-street (Painting Interior).

H. Bragg & Sons.	£557 0	T. Lapthorne & Co.	£337 0
W. H. King	375 10	G. Brittain.....	289 0
J. Appleby & Sons	363 0	Crabb & Son, 38, Upper Tulse-hill*.....	225 0
J. F. Ford	355 0		
R. Harding & Son	340 10		
L. Whitehead & Co., Ltd.....	339 0		

Norwood, Jessop-road (Painting Interior).

Crabb & Sons ..	£339 0	W. Read.....	£277 0
H. Bragg & Sons	337 0	Holliday & Greenwood, Ltd.....	259 0
Maxwell Bros., Ltd.....	308 0	J. J. Richards, 9, Shannon-grove, Brixton*.....	222 16
T. Lapthorne & Co.	288 0		

Peckham, Ivydale-road (Painting Interior).

A. Black & Son ..	£710 0	H. Line.....	£444 0
T. G. Sharpington	683 0	W. Banks	439 5
J. & C. Bowyer ..	545 0	H. Groves.....	410 0
Maxwell Bros., Ltd.	541 0	J. Garrett & Son, 17, Balham-hill*	409 0
W. Sayer & Son ..	455 0		

Peckham, Ruby-street (Painting Interior).

J. Appleby & Sons	£333 0	W. Sayer & Son..	£267 0
W. H. King	321 7	W. V. Goad	263 0
Rice & Son.....	318 0	W. Banks, 18, Egerton-road, Greenwich* ..	258 10
T. Lapthorne & Co.	306 0	E. Proctor & Son	240 0

St. George-in-the-East, Christian-street (Painting Interior and Exterior).

A. E. Symes	£533 0	Langdon & Clark	£448 0
J. Haydon & Sons	485 9	Vigor & Co., King-street, Poplar*	423 0
W. Gray & Co...	472 13	Woollaston Bros.	398 0
R. Woollaston & Co.	458 0	W. Hayter & Son	394 10

TENDERS.—*Continued on Page* 109.

CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, etc., still open, but not included in this List, see previous issues)

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be Delivered
31 tons of 3-in. C.-i. Spigot & Socket Pipes, Bramptn.	Brampton R.D.C.	H. W. Taylor, Engineer, St. Nicholas-chamb., Newcastle-on-Tyne	July 24
Locomotives with Tenders	South Indian Railway Co., Ltd.	H. W. Notman, 55, Gracechurch-street, London	July 25
Cottage, etc., at Westerhope, near Newcastle-on-T.	.....	G. Wright, West-avenue, Westerhope	do.
Goods and Materials	Horwich U.D.C.	Surveyor, Council Offices, Horwich	do.
Basement of Y.M.C.A. Premises, Albion-st., Leeds	.....	W. H. Thorp, Architect, 61, Albion-street, Leeds	do.
Farm Buildings at Welton Grange, near Eston	.....	Clark & Moscrop, Architects, Darlington	do.
Furniture for Technical Schools	Bradford Education Committee	Architect's Department, Education Office, Manor-row, Bradford	do.
Joiner's Work, Classrooms at Hanson Sch., Byron-st.	do.	do.	do.
Wrought-iron Shingle Bins and C.-i. Orderly Bins	Islington Borough Council	J. Patten Barber, Borough Engineer, Town Hall, Upper-st., N.	do.
500 super. yds. of Tar Paving	do.	do.	do.
1,000 lineal yds. of Fencing for Marsh Lands	Leyton U.D.C.	W. Dawson, Surveyor, Town Hall, Leyton	do.
Public Street Works	do.	do.	do.
Additions, etc., at Cluny Hill Hydro, Torres	.....	Ross & Macbeth, Architects, Inverness	do.
*MAKING-UP BRADFIELD-ROAD	West Ham Corporation	J. G. Morley, Borough Engineer, Town Hall, West Ham, E.	do.
Municipal Buildings, Burntisland	Town Council	Burgh Surveyor, Town Hall, Burntisland, N.B.	July 26
Rails and Fishplates	East Indian Railway Co.	C. W. Young, Secretary, Nicholas-lane, London, E.C.	do.
Cast-Iron Plate Sleepers	do.	do.	do.
Wooden-Paled Fence, Walton-street, West Park	Hull Corporation	A. E. White, City Engineer, Town Hall, Hull	do.
Additions to Permanent Way Shops, Hull	N.E. Railway Co.	W. Bell, Architect to Company, York	do.
Stationmaster's House at Castleford	do.	do.	do.
Asphalting Roads of Hebburn Park	Hebburn U.D.C.	Surveyor's Office, Hebburn	do.
*EXTEN. ELECTRIC LIGHT WKS., ARTHUR-RD	Beckenham U.D.C.	Council's Surveyor, Council's Offices, Beckenham, S.E.	do.
Painting Town's Buildings	Sowerby Bridge U.D.C.	C. L. Whitehead, C.E., Engineer to Council, Sowerby Bridge	do.
Painting Clarence Bridge over the Taff	Cardiff Corporation	W. Harpur, Borough Engineer, Town Hall, Cardiff	do.
Painting James-street Bridge over Canal	do.	do.	do.
Widening District-road	Llantrisant&Llantwit-Fardre R.D.C.	G. S. Morgan, Surveyor, School-street, Pontyclun	do.
18 Dwelling Houses, Aberbargoed	Cwrt Coch Building Club	G. Kenshole, Architect, Station-road, Bargoed	do.
*UNDERGROUND PUB. CONV., LORDSHIP-LA.	Wood Green U.D.C.	Council's Surveyor, Town Hall, Wood Green	do.
Paint Work and Repairs at Friary-road Stables	Guildford Corporation	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford	do.
422 yds. 6-in. Earthenw. Pipe Sewer, Newbold Verd.	Market Bosworth R.D.C.	W. M. Sykes, Surveyor, Chapel-street, Ibstock	do.
Alterations, etc., City Hospital, Leeds-road	Bradford Corporation	City Architect, Whitaker-buildings, Brewery-street, Bradford	do.
*ALTERS. TO ELECTRICITY WKS., FULHAM-RD.	Hammersmith Borough Council	Borough Surveyor, Town Hall, Hammersmith Broadway	do.
*NEW SAILORS' HOME AT WEYMOUTH	.....	Crickmay & Sons, 13, Victoria-street, Westminster, S.W.	do.
Cleaning and Painting Board-room, etc., Whiston	Prescot Guardians	J. Gandy, Architect, St. Helens	July 27
Water Tanks, Pump House, etc., Ladywell, Duna	Sir J. Miller, Bart.	J. & A. Leslie & Reid, C.E., 72A, George-street, Edinburgh	do.
Oil or Gas Engine and Pump at Ladywell	do.	do.	do.
Paving Derwent Water-road, Gateshead	The Corporation	N. P. Pattinson, Borough Engineer, Town Hall, Gateshead	do.
Nurses' Home	Meath Hospital & Dublin Infirmary	J. F. Fuller, F.S.A., 179, Great Brunswick-street, Dublin	July 28
Sheep Market, Senny Bridge	Markets Committee	B. L. Pritchard, Surveyor, 22, Castle-street, Brecon	do.
Conver. Hos. Block into Infirmary Block, Horton-lane	Bradford Guardians	F. Holland, Engr., etc., 11, Parkinson's-chbrs., Hustlergate, Bradford	July 29
Additions to 61, Great Britain-street	Mr. C. Glendon	W. A. Scott, Architect, 74, Hollybank-road, Drumcondra	do.
Oils	Dudley Corporation	R. P. Wilson, Engineer, 66, Victoria-street, Westminster	do.
Alterations to Kitchen, etc., at City Lunatic Asylum	Newc.-T. Asylum Visiting Com'tee	City Property Surveyor's Department, Town Hall, Newc.-on-Tyne	do.
Milton Burn Diversion Scheme, Newtonmore	Inverness-shire C.C.	J. Wedderspoon, Engineer, The Castle, Inverness	do.
Granite Setts	Bradford Corporation	J. H. Cox, City Surveyor, Town Hall, Bradford	do.
Warehouse, Croft-street, Newcastle-on-Tyne	.....	Oliver, Leeson, & Wood, Archs., Bank-chbrs., Mosley-st., N'castle	do.
Intake Works and Gravitation Main	Stockport Corporation	E. Mansergh, Engineer, 5, Victoria-street, Westminster	July 31
Smallpox Hospital, Weycock-road, Barry	Barry U.D.C.	J. C. Pardoe, Surveyor, 160, Holton-road, Barry	do.
Apparatus for Summoning Firemen	Beckenham U.D.C.	F. Stevens, Clerk to the Urban District Council	do.
Manganese Steel Points and Crossings, etc.	Aberdeen Harbour Commissioners	R. Gordon Nicol, Harbour Engineer's Office, Aberdeen	do.
Altera., etc., to the Silsden Aire View Schs., Keighley	West Riding Education Committee	J. Vickers-Edwards, County Architect, County Hall, Wakefield	do.
Kerbing, Artificial Stone Paving, etc.	Lewisham Borough Council	Surveyor's Department, Town Hall, Catford	do.
Steel Rails and Steel Fishplates	Southern Mahratta Railway Co.	E. Z. Thornton, Secretary, 46, Queen Anne's-gate, S.W.	Aug. 1
Medical Officer's Residence, etc., Castleknock	North Dublin Guardians	J. O'Neill, Clerk, North Brunswick-street, Dublin	Aug. 2
Pumping Station at Kildare	Naas No. 1 R.D.C.	F. Bergin, Engineer, Beechgrove, Kildare	do.
*EXTEN., WKRM., ETC., HARROW-RD. WKHSE.	Paddington Guardians	F. J. Smith, Arch., Parliament-mansions, Victoria-street, S.W.	do.
Purification Works, etc., Bathgate	Bathgate Town Council	Middleton, Hunter, & Duff, Engrs., 42, Frederick-st., Edinburgh	Aug. 4
*ADDS. & ALTRS. TO SHOREDITCH COUNTY CT.	H.M. Office of Works	H.M. Office of Works, Storey's Gate, Westminster, S.W.	do.
Cornish Type Boiler	Ipswich Guardians	H. J. Kent, Clerk, 19, Tower-street, Ipswich	Aug. 5
*REBUILD. CHANCEL, ST. MARY'S, NUNEATON	Building Committee	H. Brakspear, Architect, High-street, Corsham, Wilts	Aug. 7
Fire Brigade Station, Clyde-st.	Partick Town Council	J. Bryce, Burgh Engineer, 1, Maxwell-street, Partick	do.
Sewage Disposal Works	Galston Town Council	Elliott & Brown, Engrs., Burton-buildings, Parliament-st., N'ham	do.
Road Improvements	Ebbw Vale U.D.C.	T. J. Thomas, Surveyor and Engineer, Ebbw Vale	do.
*ALTERATIONS TO LINGFIELD SCHOOL	Surrey Education Committee	Jarvis & Richards, 36, Victoria-street, Westminster, S.W.	do.
Fire Escape, 40 ft. High	Town Commissioners of Mullingar	P. J. Carroll, Town Clerk	Aug. 8
Paving Works	Southall-Norwood U.D.C.	R. Brown, Engineer and Surveyor, Public Offices, Southall	do.
*ELEC. CAR SHED AT HAMMERSMITH STA.	Direcs. of Gt. Western & Metro. Rys.	Engineer's Office, Paddington Station, W.	do.
Pumping Engine at Sewage Works	Bishop's Stortford U.D.C.	T. Swatheridge, Clerk, 7, North-street, Bishop's Stortford	Aug. 12
*NEW COTTAGES, ETC., AT WATERWORKS	Borough of Ryde	Borough Engineer, Town Hall, Ryde	do.
Storage Reservoir, etc., Castle Carrock Beck	Carlisle Corporation	J. Mansergh & Sons, Engineers, 5, Victoria-street, Westminster	Aug. 14
*CONCRETE & STEEL SERVICE RESERVOIR	Brumby and Frodingham U.D.C.	A. Atkinson, Engineer, Brigg	do.
*FIRE STAT'N & READING-RM., HAMPTON HILL	Hampton U.D.C.	Council Surveyor, Public Offices, Hampton, Middlesex	Aug. 15
*ALTERS. & ADDS. TO BARNET WORKHOUSE	Barnet Guardians	White, Son, & Pill, 13-15, High-street, Barnet, Herts	Aug. 16
Alterations to Ice-Making Plant, etc., at Abattoirs	Bury Corporation	A. W. Bradley, Borough Engineer and Surveyor, Bank-st., Bury	Aug. 19
*ALTRS. TO LAUNDRY, S.E. HOSP., NEW CROSS	Metropolitan Asylums Board	Office of the Board, Embankment, E.C.	Sept. 5
Waterworks Scheme	Municipal Board of Mussoorie, India	C. H. Shanan, Municipal Electrical Eng., Mussoorie, N.P., India	Oct. 9
Electric Lighting and Waterworks Scheme	do.	do.	Oct. 23
Detached House, Stables, etc., at Chapel-en-le-Frith	Mr. A. Giddings	J. B. Langley, Architect, 49, Deansgate, Manchester	No date.
Laundry at Workhouse, Brampton	Brampton Guardians	T. Taylor Scott, Architect, 43, Lowther-street, Carlisle	do.
Vicarage at Pontycymmer, near Bridgend	Rev. H. Price James	J. Cook Rees, Architect and Surveyor, Church-place, Neath	do.
Alterations, St. Peter's School, Plymouth	.....	N. F. Bellamy, Architect and Surveyor, Courtney-st., Plymouth	do.
Cloakrooms and Offices at Grewelthorpe Nat. School	.....	The Vicarage	do.
Pipes, Valves, etc.	Herne Bay U.D.C.	F. W. J. Palmer, Surveyor, Town Hall, Herne Bay	do.
*INF. SCH. AT BROWNHILLS, WALSALL WOOD	Staffordshire C.C. Education Com.	Education Committee Offices, Stafford	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*CHIEF ASSISTANT IN BUILD. TRADES DEPOT	Northern Polytechnic Institute	150*l.* per annum	July 24
*JUNIOR ASSISTANT	Willesden D.C.	175*l.* per annum	do.
*SENIOR ARCHITECT'S ASSISTANT	Glamorgan C.C. Education Com.	2*l.* 10s. per week	July 27
*JUNIOR ARCHITECT'S ASSISTANT	do.	2*l.* 2s. per week	do.
*LECTURER FOR PRE. CLASS FOR SAN. INSP.	Borough Polytechnic Institute	15s. per evening	July 29
*ELECTRIC WIRING & FITTING INSTRUCTOR	do.	15*l.* for the session	do.
*RESIDENT ENGINEER	County Borough of Croydon	20*l.* per calendar month	Aug. 2
*ARCHITECT'S ASSISTANT	East Sussex C.C.	3*l.* 3s. per week	No date.

Those marked with an asterisk (*) are advertised in this number. *Competitions*, —. *Contracts*, iv. vi. viii. x. *Public Appointments* xix.

TENDERS.—*Continued from page 107.*

St. Pancras, N., Mansfield-road (Painting Interior of Main and Special Schools).

G. Kirby	£348 19	T. Cruwys	£289 0
Mattock & Parsons	339 0	Marchant & Hirst, 136, Highgate-rd.*	265 0
Chinchen & Co.	314 15		
Stevens Bros.	292 0		

St Pancras, S., Whitfield-street (Painting Interior).

W. Chappell	£250 0	W. H. Lascelles & Co.	£212 10
G. Foxley	239 0	W. Brown & Sons, 195, Uxbridge-road*	170 0
Marchant & Hirst	225 0		
W. Hayter & Son	215 10		

St. Pancras, W., Netley-street (Painting Interior).

G. Neal	£390	W. Chappell	£295
G. Foxley	370	Marchant & Hirst, 136, Highgate-road*	270
J. Peattie	348		
T. Cruwys	299		

Southwark, W.. Orange-street (Painting Interior).

Lathey Bros.	£600 0 0	W. Hornett	£423 0 0
W. Banks	459 11 6	W. Sayer & Son, 86, New-Kent-road*	405 0 0
J. Appleby & Sons	452 0 0		
W. Downs	434 0 0		

Southwark, W.. Pocock-street (Painting Interior of School and Cleaning Interiors of Deaf Centre and Special School).

T. L. Green	£444 10	Holliday & Greenwood, Ltd.	£358 0
W. H. King	421 0	W. Sayer & Son	316 0
W. Hornett	387 0	J. F. Ford	317 0
W Johnson & Co., Ltd.	379 0	W. Banks, 18, Egerton-road, Greenwich*	312 10
J. Greenwood, Ltd.	370 0		

Stepney, Rutland-street (Painting Interior).

A. E. Symes	£330	A. W. Derby, 60, Mayfair-avenue, Ilford*	£283
Vigor & Co.	316	H. Bouneau	266
Woollaston Bros.	288		

Strand, Charing Cross-road (Painting Interior).

T. L. Green	£467	M. Pearson	£209
W. Hornett	212	J. R. Sims, 58, Horse-ferry-road, Westminster*	182
G. Foxley	238		
Langdon & Clark	237		

Walworth, Mina-road (Cleaning Interior of Old Portion).

W. H. King	£333	Rice & Son, 15, Stockwell-road*	£272
J. Greenwood, Ltd.	300		
H. Line	299		

Walworth Sayer-street (Painting Interior).

W. Downs	£828 0 0	W. Banks	£429 12 6
W. H. King	611 0 0	T. Lapthorne & Co., 1, High-street, Lambeth*	417 0 0
Lathey Bros.	537 0 0	E. Proctor & Son	380 0 0
W. V. Goad	474 0 0		
Martin, Wells, & Co., Ltd.	470 0 0		
W. Sayer & Son	436 0 0		

Wandsworth, Brandlehow-road (Painting Interior and Exterior).

C. Leather & Sons	£612 0 0	W. Hornett	£538 0 0
Lathey Bros.	579 10 0	E. B. Tucker	489 0 0
W. Johnson & Co, Ltd.	560 0 0	J. & M. Patrick, Point-pleasant, Wandsworth*	471 10 0
R. A. Jewell	552 7 0	E. Triggs	471 0 0
R. S. Ronald	545 6 8		

Wandsworth, Garratt-lane (Painting Interior).

W. King & Son	£624 0	J. & M. Patrick	£354 0
W. Johnson & Co.	420 0	J. Garratt & Son	353 0
R. S. Ronald	393 0	C. Leather & Sons, 114, Merton-road, Wandsworth*	290 10
Martin, Wells, & Co., Ltd.	381 0		
R. A. Jewell	379 10		

Wandsworth, Sunnyhill-road (Painting Interior and Exterior).

R. Harding & Son	£438 12	J. J. Richards	£340 0
Grace & Marsh	409 0	Holliday & Greenwood, Ltd.	287 0
H. Bragg & Sons	397 9	W. Read, 43, Church-road, Brixton*	275 0
Lathey Bros.	386 0		
W. Johnson & Co., Ltd.	364 0		

Wandsworth, West-hill (Iron Building, Painting Interior and Exterior).

C. Leather & Sons	£69 10	W. & C. Brown	£55 0 0
A. Leather	68 10	R. S. Ronald, St. Ann's-hill, Wandsworth*.	49 0 0
E. B. Tucker	64 0		
R. A. Jewell	56 5		

Whitechapel, Commercial-street (Painting Interior and Exterior).

H. Bouneau	£540 0	Vigor & Co.	£395 0
Woollaston Bros.	537 0	A. E. Symes	389 0
A. W. Derby	457 0	W. Sayer & Son, 86, New Kent-road*	365 0
J. Dolman & Co.	413 0		
J. Haydon & Sons	401 10		

Woolwich, Ancona-road (Painting Interior).

H. Groves	£415 0 0	W. J. Howie	£359 0
J. Scott Fenn	389 15 0	E. Proctor & Son, 326, High-street, Plumstead*	330 0
W. Hayter & Son	359 17 6		

Woolwich, Burrage-grove (Painting Interior).

W. Banks	£284 19 6	E. Proctor & Son	£274 0
J. Scott Fenn	279 10 0	W. J. Howie, 37, Blackheath-rd.*	269 0
W. Hayter & Son	274 10 0		

Woolwich, Union-street (Painting Interior).

J. Scott Fenn	£225 18 0	E. Proctor & Son	178 0 0
W. Banks	194 10 6	W. Haytor & Son	169 10 0
H. Groves, Stockwell-street, Greenwich*	185 0 0		

Anerley Residential Home (Cleaning and Painting Interior).

Grace & Marsh	£332 0	J. & C. Bowyer, Westow-street, Upper Norwood*	£183 0
H. Jeney & Son	296 10	C. G. Jones	176 10
W. Young	222 0	C. J. Jerrard	141 0
A. Black & Son	199 0		
E. P. Bulled & Co.	193 0		

St. Pancras, E., The "Stanley" School (Painting).

T. L. Green	£1,189	W. Hornett	£678
Stevens Bros.	736	T. Cruwys	676
W. Chappell	720	Marchant & Hirst	652
Mattock & Parsons	696		

Brixton, Hackford-road (Sanitary Work).

[The work to be done by Mr. R. P. Beattie, the actual cost to be calculated on his contract schedule of prices for executing sanitary works at this school.]

LONDON.—For making-up the carriageway of Brill-street, Fulham, for the Fulham Borough Council. Mr. Francis Wood, Borough Surveyor, Town Hall, Fulham, S.W.:—

	Roadway.	Footway.
W. Neave & Son	£837	—
J. Mears	785	—
F. Fowles	740	—
G. Wimpey	711	—
H. J. Greenham	674	—
A. B. Champniss*	600	—
Borough Surveyor*	—	£260

LONDON.—For taking off present roof and forming new roof, etc., at 88, High-street, Peckham, S.E., for Mr. H. Morse. Mr. A. Garnar, architect and surveyor, 66, Oakhurst-grove, East Dulwich, S.E.:—

W. Coates	£212 0	F. Dawes	£174 0
W. T. Champion	183 0	W. Smith*	173 10
J. Ham	178 0		

LONDON.—For roadworks, part of Ermine-road, Ladywell, for the Lewisham Borough Council:—
W. Pearce, Havelock-street, Forest Hill* £388

LONDON.—For road works, part of Gabriel-street, Forest Hill, for the Lewisham Borough Council:—
Fry Bros., Lion Wharf, Greenwich* £265

LONDON.—For paving the footpath on the west side of Mayow-road, Sydenham, for the Lewisham Borough Council:—
Preston Granite Concrete Co. Ltd., Preston .. £54

LONDON.—For painting works and repairs for Lambeth Borough Council:—

	Painting Work and Repairs.	Cleaning External Stonework.
Franks & Simons	£240 0 0	£22 0 0
P. McCarthy	249 0 0	66 0 0
S. T. Wright & Co., 98A, Arthur-street, Fulham-road*	278 7 0	25 0 0
Compton Bros.	319 4 6	45 8 6
Maxwell Bros., Ltd.	329 0 0	110 0 0
H. C. Payne	333 0 0	166 10 0
W. A. King	336 0 0	332 0 0
Crabb & Son	385 0 0	325 0 0
T. Lapthorne & Co.	366 0 0	135 0 0 / 290 0 0
Hibberd Bros., Ltd.	394 0 0	194 0 0
W. Pearce	394 5 0	125 0 0
J. Scott Fenn	412 0 0	87 10 0
A. T. Vlaor & Co.	419 0 0	298 0 0
H. Bouneau	424 12 0	155 0 0
J. Norris & Sons	450 0 0	115 0 0
Spencer, Santo, & Co., Ltd.	465 0 0	105 0 0
R. C. Scutt & Son	485 0 0	175 0 0
T. Hooper & Son	525 0 0	120 0 0
R. Sandland	541 0 0	64 0 0
F. Kinnaird	561 0 0	153 0 0

MANGOTSFIELD.—For erecting composite wood and iron school buildings, for the Education Committee of the Gloucestershire County Council. Mr. R. S. Phillips, Surveyor, Shire Hall, Gloucester:—

R. Iles, Ltd.	£925 0 0	H. S. Crump	£808 12 9
E. F. Blakeley & Co.	902 0 0	W. J. Mullings	782 6 0
Brown & Lilly, Ltd.	874 10 0	J. Priest & Son, Ltd.	768 10 0
Humphreys, Ltd.	857 0 0	J. Harrison	735 0 0
Ginger, Lee, & Co.	819 0 0	T. J. Hawkins & Co.	666 0 0
F. Smith & Co., Ltd.	843 0 0	E. S. Bennett	639 0 0
J. Browning	828 0 0	Darlington Construction Co., Ltd.*	615 0 0
W. Harbrow	818 10 0		

RIPON.—For widening and repairing Cundall Bridge, for the Wath Rural District Council. Mr. H. A. Johnson, engineer, 15, The Exchange, Bradford:—

D. Wilkinson	£218 4	I. Kay	£213 0

SELLY OAK.—For alterations at the Union Workhouse necessary for provision of lavatory and cloak-room accommodation, for the Guardians. Messrs. C. Whitwell & Son, architects, 23, Temple-row, Birmingham:—
G. Robinson & Son, King's Heath* .. £365 10

SKETTY.—For erecting seventeen houses in Harry-street, for the Third Sketty Co-operative Building Club. Mr. C. T. Ruthen, architect, Bank-chambers, Heathfield-street, Swansea. Quantities by the architect:—

T. Richards	£4,120 0	I. & D. Jones	£3,950 0
W. Evans	4,120 0	C. Marles, Swansea*	3,652 10
T. D. Jones	4,000 0		

SLEAFORD (Lincs.)—For 870 lineal yds. of 3-in. cast-iron mains, for the Rural District Council. Mr. W. B. Marsden, Surveyor, 74, Southgate, Sleaford:—
J. T. Barnes, Sleaford* £250

SWANSEA.—For erecting Libanus new Baptist chapel, Cwmbwrla. Mr. H. A. Ellis, architect, 10, Fisher-street, Swansea. Quantities by Mr. Bucknell, Fisher-street, Swansea:—
J. & F. Weaver, Mansetton, Swansea* £4,100

THIRSK.—For erecting a new house, for Mr. H. Masterman. Mr. W. Hargreaves Bourne, architect, Darlington. Quantities by architect:—

Excavator, Bricklayer, and Mason: W. Jackson, Westgate, Thirsk*	£676 4 0
Plasterer: W. Jackson, Westgate, Thirsk*	103 14 6
Joiner: R. T. Snaith, Boudgate, Darlington*	606 0 0
Tilers: J. Harrison & Son, Old Packet Wharf, Middlesbrough*	95 2 0
Plumbers: Lishman & Son, 35, Bondgate, Darlington*	261 0 0
Painters: T. White & Son, Thirsk*	24 15 0

LONDON.—For the erection of the Patent Office Extension (Furnival-street), for the Commissioners of H.M. Works and Public Buildings:—

—	Yorkshire Stone.	"Shamrock" Stone.	Old Materials.
	£ s. d.	£ s. d.	£ s. d.
J. Smith & Sons, Ltd.*	19,414 0 0	19,264 0 0	180 0 0
B. E. Nightingale	19,490 0 0	19,330 0 0	100 0 0
C. Wall, Ltd.	19,700 0 0	19,525 0 0	8 10 0
H. J. Williams, Ltd.	19,927 0 0	19,807 0 0	—
W. Downs	19,987 0 0	19,865 0 0	—
J. Chessum & Sons	19,987 0 0	20,075 0 0	20 0 0
W. H. Lorden & Son	20,060 0 0	19,830 0 0	50 0 0
Higgs & Hill, Ltd.	20,164 0 0	20,000 0 0	20 0 0
E. Laurance & Sons	20,190 0 0	20,095 0 0	25 0 0
Patman & Fotheringham, Ltd.	20,323 0 0	20,373 0 0	—
T. H. Kingerlee & Sons	20,353 0 0	20,185 0 0	66 0 0
Perry Bros.	20,361 0 0	20,227 0 0	—
F. Gough & Co.	20,634 0 0	20,474 0 0	40 0 0
J. Garrett & Sons	20,684 0 0	20,534 0 0	9 0 0
F. & H. F. Higgs	20,700 0 0	20,550 0 0	—
J. & M. Patrick	20,070 0 0	20,534 0 0	109 0 0
W. Smith & Sons	20,765 0 0	20,615 0 0	—
Waring White Building Co., Ltd.	20,800 0 0	20,879 0 0	15 0 0
G. E. Wallis & Sons, Ltd.	20,884 0 0	20,734 0 0	154 0 0
Turtle & Appleton	20,900 0 0	20,736 0 0	30 0 0
G. Godson & Sons	20,921 0 0	20,775 0 0	50 0 0
J. Christie	21,000 0 0	20,850 0 0	—
J. Allen & Sons, Ltd.	21,150 0 0	21,000 0 0	—
Martin, Wells, & Co., Ltd.	21,159 0 0	21,170 0 0	—
J. Mowlem & Co.	21,477 0 0	21,327 0 0	—
H. L. Holloway	21,527 0 0	21,327 0 0	—
H. Lovatt, Ltd.	21,870 0 0	21,901 0 0	—
Leslie & Co., Ltd.	21,969 0 0	21,796 0 0	16 0 0
Perry & Co., Bow, E.	21,989 0 0	21,809 0 0	45 0 0
E. P. Bulled & Co.	22,064 0 0	21,740 0 0	70 0 0
F. J. Stanbury	22,164 10 7	22,044 10 7	44 10 7
H. Willcock & Co.	26,500 0 0	26,350 0 0	100 0 0

MIDDLESBROUGH.—For erecting Crescent-road Schools, for the Education Committee. Messrs. R. Lofthouse & Son, architects, 62, Albert-road, Middlesbrough:—

—	Excavator, etc.	Slater.	Plasterer.	Plumber, etc.	Painter.	Carpenter, etc.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
H. McNaughton	9,376 8 3	614 15 0	692 0 0	1,240 0 0	159 10 0	4,822 7 0	16,905 8 3
Stephen Coates	9,423 0 0	614 15 0	692 0 0	1,730 0 0	159 10 0	3,725 0 0	16,344 5 0
T. Dickenson & Son	—	—	—	—	—	—	16,666 0 0
Allison Bros.	8,500 0 0	615 0 0	692 0 0	1,674 0 0	159 0 0	3,800 0 0	15,440 0 0
Hudson Bros.	8,800 0 0	620 0 0	700 0 0	1,740 0 0	162 0 0	4,288 0 0	16,310 0 0
Vinter & Davidson	9,058 0 0	620 0 0	700 0 0	1,750 0 0	180 0 0	3,500 0 0	15,808 0 0
C. Moss	8,674 12 9	500 0 0	724 8 7	1,750 0 0	210 0 0	4,803 1 5	15,562 17 6
J. Howe & Co.	8,821 9 3	598 16 0	660 0 0	1,630 0 0	170 0 0	3,769 16 4	15,650 1 7
W. Pearson	—	—	—	—	—	—	14,621 14 8
J. Proud	—	—	—	—	—	—	14,695 9 8
B. Crisp & Son	12,069 16 8	614 15 0	732 0 0	1,730 0 0	185 19 6	4,097 10 0	19,430 1 2
T. Brown	8,899 11 0	614 15 0	692 0 0	1,600 0 0	175 0 0	3,518 14 0	15,500 0 0
Bastiman Bros.	8,727 8 5	614 15 0	692 0 0	1,730 0 0	159 10 0	4,288 0 0	16,211 13 5
H. Doughty & Son	8,999 0 0	621 0 0	704 0 0	1,670 0 0	162 0 0	4,283 0 0	16,439 0 0
G. Radge	8,488 0 0	614 0 0	692 0 0	1,730 0 0	159 10 0	3,488 10 0	15,172 0 0
Watt Bros.	8,577 9 0	614 15 0	700 0 0	1,610 0 0	159 10 0	3,548 6 0	15,190 0 0
J. Daveson	8,782 0 0	615 0 0	692 0 0	1,690 0 0	160 0 0	3,881 0 0	15,800 0 0
J. G. Porteous	8,975 0 0	615 0 0	632 0 0	1,684 0 0	178 0 0	3,702 0 0	15,786 0 0
W. C. Atkinson & Son	9,389 13 5	630 2 0	712 15 0	1,744 19 3	270 19 10	3,746 14 5	16,495 3 11
Thompson Bros.	8,545 0 0	614 15 0	752 0 0	1,740 0 0	185 0 0	3,450 10 0	15,287 5 0

TENDRING.—For heating the workhouse and infirmary at Tendring, near Colchester, for the Guardians. Messrs. Price & Belcham, architects, 52, Queen Victoria-street, E.C.:—

W. J. Burroughs & Sons	£2,979	17	Stanford & Co.	£1,598 15 / ‡1,628 15	
J. E Tabor	2,200	0	J. & F. May	1,595	0
B. Parker, Ltd.	2,087	0	G. H. Robinson	1,590	0
J. Richmond & Co., Ltd.	1,925	0	R. Clarke	1,569	0
Dargue, Griffiths, & Co., Ltd.	1,766	0	R. Dawson & Co., Ltd.	1,549	0
Z. D. Berry & Sons	1,750	0	The Brightside Foundry & Engineering Co., Ltd.	1,530	0
Cocksedge & Co.	1,720	0	A. J. Harvey	1,528	0
M. Duffield & Sons, Ltd.	1,700	0	The Lancashire Heating Co.	1,507 / ‡1,483	0 / 0
Strode Co.	1,697	0	Hefford & Shuttlewood, Ltd., Leicester*	1,497	10
F. W. Lewellen & Co.	1,625 / ‡1,675	0 / 0			

‡ Alternative tender.

TIPTON.—For alterations and provision of partitions at Tipton Green and Great Bridge Council Schools, for the Urban District Council Education Committee. Mr. A. Long, architect, 21, New-street, West Bromwich:—

	Tipton Green.	Great Bridge.
T. Chapman, West Bromwich*	£295 0*	£198 10*
Oakley & Colson	451 5	228 0
T. Hardy	295 0	285 0
J. Sisman	335 0	260 0
S. W. Moore	346 0	230 0
J. F. Beach	349 0	—
E. Mallin	405 0	265 0
G. Jones	370 0	239 0
A. Cashmore	372 10	240 0
J. Brain	371 6	224 15
E. & W. Bennett	330 0	270 0

TWICKENHAM.—For cleaning, distempering, and painting the Town Hall, for the Urban District Council. Mr. F. W. Pearce, Surveyor, Town Hall, Twickenham:—

B. Compton	£198	7 3	J. C. Snell, Twickenham*	£137 10 0
F. Smith	188	0 0		
F. De Jong	144	0 0		

TWICKENHAM.—For heating and ventilation at the Town Hall, for the Urban District Council. Mr. F. W. Pearce, Surveyor, Town Hall, Twickenham:—

Rosser & Russell	£243	0	Shrubbs & Sons	£162 0
Jeffreys & Co.	198	0	J. Gray	162 10
G. & E. Bradley	178 / 181	0 / 0	Howard	160 10

TWICKENHAM.—For erecting Trafalgar schools, Third Cross-road, for the Urban District Council. Mr. H. A. Cheers, architect, 35, Waldegrave-park, Twickenham. Quantities by Mr. W. Herring, 163, Strand, W.C.:—

W. H. Hyde	£16,960	Cropley Bros., Ltd.	£14,995
Stimson & Co.	16,700	Spencer, Santo, & Co., Ltd.	14,940
J. Ferguson & Co.	16,400	D. W. Barker	14,897
Enness Bros.	16,088	S. N. Soole & Son	14,857
J. W. Brooking	15,990	Wisdom Bros.	14,750
W. R. Williams	15,950	W. Moss & Son	14,742
Myall & Upson	15,874	C. Wall, Ltd.	14,666
J. Barker & Co., Ltd.	15,830	W. Lawrence & Son	14,484
E. Wall	15,750	A. Hudson	14,460
G. Parker	15,550	W. H. Lorden & Son	14,444
H. Willcox & Co.	15,484	W. Wallis	14,228
J. Chessum & Sons	15,400	Turtle & Appleton	14,220
Sneechley & Smith	15,315	R. Flint	14,177
Oak Building Co., Ltd.	15,306	G. H. Gibson	14,095
J. Appleby & Sons	15,300	W. J. Dickens	13,997
M. Wells & Co., Ltd.	15,240	W. J. Renshaw	13,993
B. E. Nightingale	15,181	Cowley & Drake	13,641
W. J. Fryer & Co.	15,044	J. & M. Patrick, Wandsworth*	13,399

WATFORD.—For erecting new school at Parkgate-road, for the Hertfordshire County Council Education Department. Mr. C. P. Ayres, architect, Watford:—

Clark Bros.	£11,052 15 0	W. Lawrence & Son	£10,339 0 0
Lorden & Son	10,951 0 0	G. & J. Waterman	10,333 0 0
Godson & Sons	10,897 0 0	Hockley & Co.	10,175 0 0
Coulson & Lofts	10,818 0 0	J. Murray & Son	10,099 0 0
Miskin & Son	10,800 0 0	Clifford & Gough	9,999 0 0
W. King	10,800 0 0	H. B. Watkins	9,899 0 0
G. Wiggs	10,735 0 0	C. Brightman	9,875 0 0
Parnell & Son	10,686 0 0	Oak Building Co., Cambridge*	9,749 18 7
W. H. Binkins	10,652 0 0		
Webster & Cannon	10,600 0 0		
J. Darvill	10,540 0 0		
J. L. Tyler	10,498 0 0		
H. Martin	10,440 0 0		

[Architect's estimate, £10,468.]

WEST HAM.—For laying tar-paving to playgrounds of three schools, for the Education Committee. Mr. W. Jacques, architect, 2, Fen-court, E.C.:—

Holborn-road School.
Constable & Co., Franklin-street, Kentish Town, N.W.* £549

Napier-road School.
Constable & Co., Franklin-street, Kentish Town, N.W.* £312

Shipman-road School.
Constable & Co., Franklin-street, Kentish Town, N.W.* £449 10

WELLS.—For the extension and alteration of the Council Chamber, new staircases, and other works at the Guildhall, for the City Council. Mr. C. Brown, City Surveyor:—

E. Love, Redland, Bristol* £695

WEST HAM.—For cleaning, repairing, and painting of schools, for the Education Committee. Mr. W. Jacques, architect, 2, Fen-court, E.C.:—

Bridge-road School (Interior).
H. C. Horswill, 182, Green-street, Forest Gate, E.* £309 0 0

Credon-road School (Exterior).
H. C. Horswill, 182, Green-street, Forest Gate, E.* 180 0 0

South Hallsville School (Interior).
H. C. Horswill, 182, Green-street, Forest Gate, E.* 330 0 0

Whitehall-place School (Exterior).
H. C. Horswill, 182, Green-street, Forest Gate, E.* 210 0 0

Channelsea School (Exterior).
W. H. Swann, 50, Prestbury-road, Forest Gate* 108 0 0

Hallsville School (Interior).
J. E. Measor, 674, Barking-road, Plaistow* 170 17 0

Three Mills School (Exterior).
W. J. Clemens, 24, Bridge-road, Stratford* .. 184 12 3

Water-lane School (Interior).
Gregar & Son, Jupp-road, Stratford* 325 0 0

WORCESTER PARK (Surrey).—For erecting a detached house, stabling and coach-house, etc., for Mr. Alfred Lawson Gurney. Messrs. W. G. Tutt & Goodchild, architects and surveyors, St Olave's House, 18, Ironmonger-lane, E.C. Quantities by Mr. Frank D. Hickman, 18 and 19, Ironmonger-lane, E.C.:—

		Months.
A. W. Jaggers	£7,384 3 6	8
Hibberd Bros., Ltd.	7,100 0 0	9
G. E. Wallis & Sons	7,080 0 0	12
A. Leather	6,989 0 0	9
J. Burges & Sons	6,985 0 0	8
Sansom & Bishop	6,858 0 0	12
Braid, Pater, & Co., Ltd.	6,842 0 0	9
J. & C. Bowyer	6,839 0 0	9
J. Thomas	6,833 0 0	9
J. & M. Patrick	6,787 0 9	10
Aldin Bros. & Davies	6,780 0 0	9
J. Barker & Co., Ltd.	6,733 0 0	8
Leslie & Co., Ltd.	6,670 0 0	8
Holliday & Greenwood	6,666 0 0	11
Enness Bros.	6,663 0 0	7
W. H. Lorden & Son	6,575 0 0	12
T. Parnell & Son	6,571 0 0	9
H. C. Payne	6,556 0 0	12
T. J. Hawkins & Co.	6,533 0 0	9
Aldridge & Son	6,500 0 0	10
Turtle & Appleton	6,475 0 0	9
Higgs & Outhwaite	6,474 0 0	8
Marten, Wells, & Co., Ltd.	6,400 0 0	9
Gathercole Bros.	6,350 0 0	9
F. J. Shopland	6,270 0 0	8
Oak Building Co., Ltd.	6,199 0 0	—
Cropley Bros., Ltd.	6,197 0 0	9
H. Flint	5,977 0 0	8
J. Christie	5,946 0 0	10
C. Sims & Co.	5,908 15 0	9

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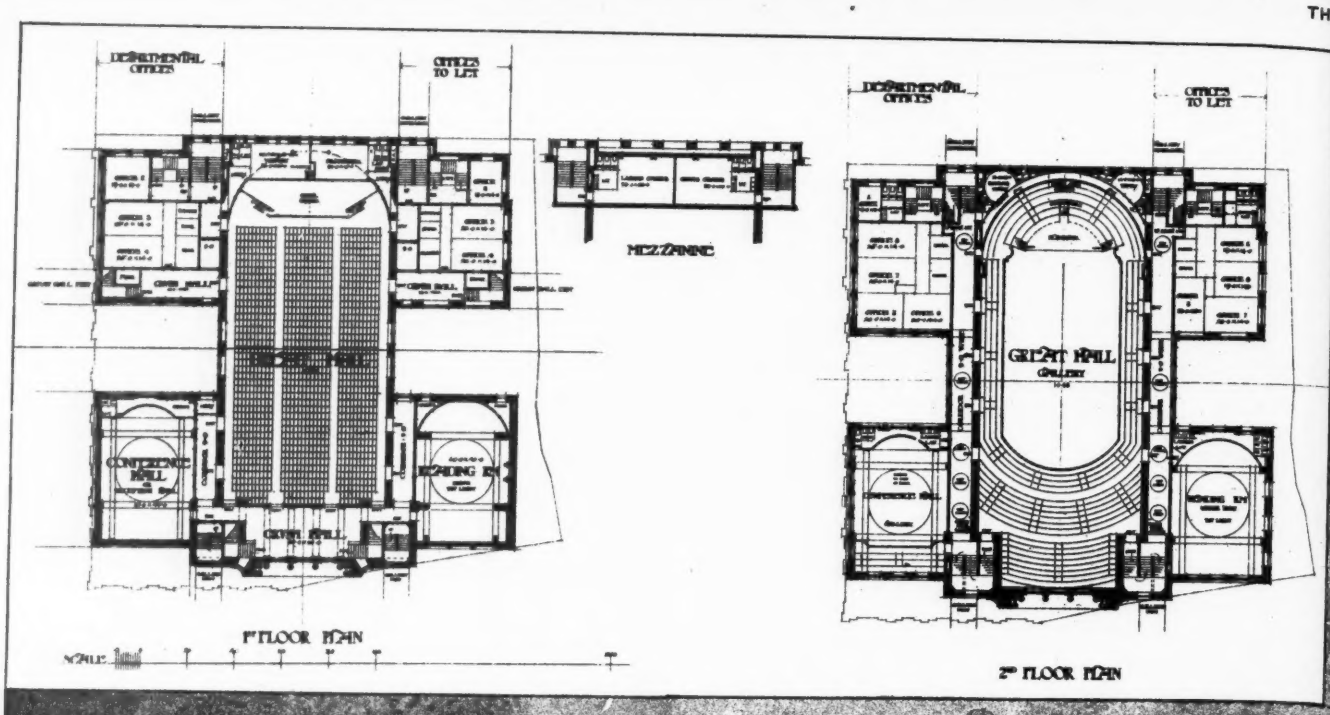

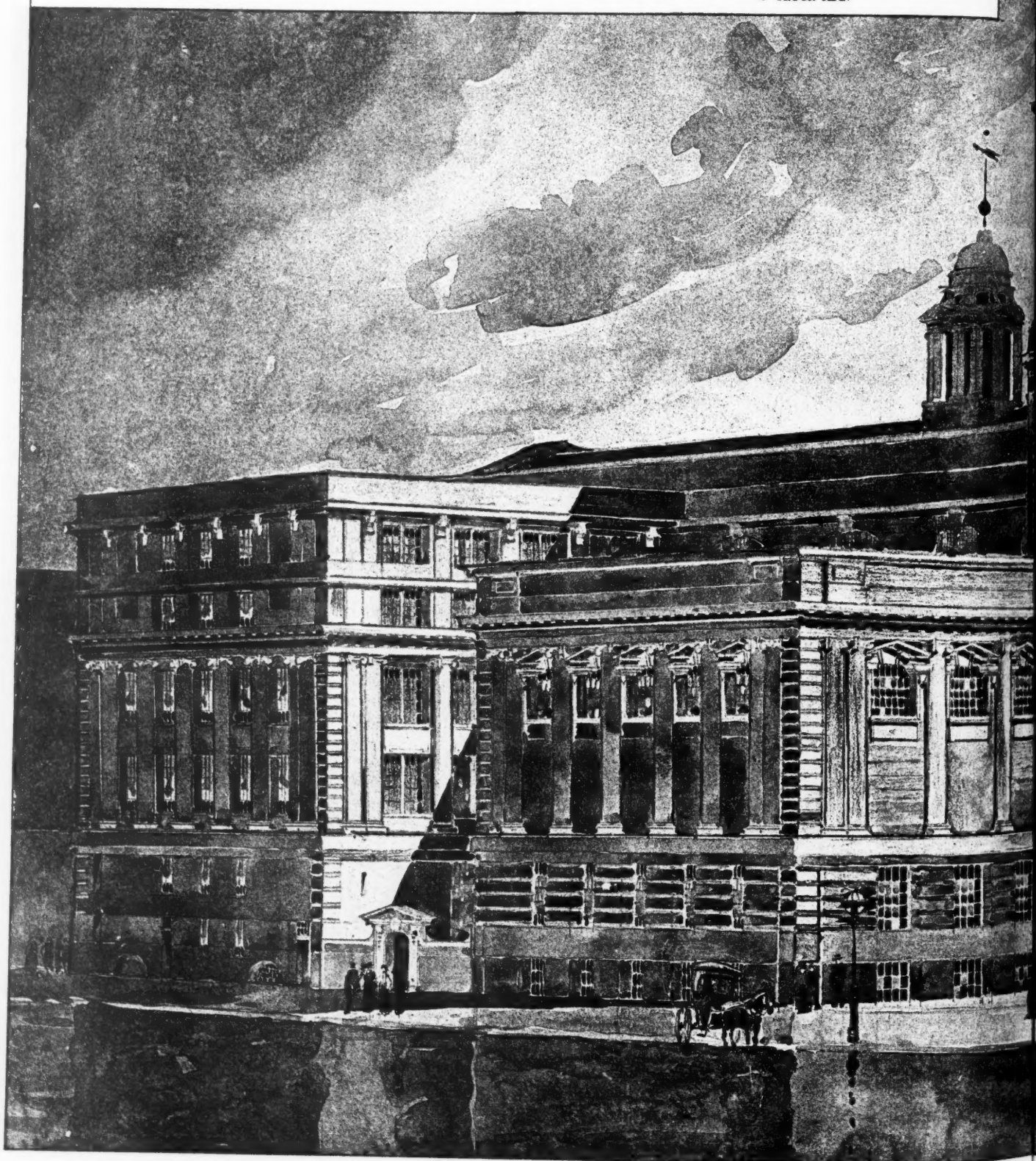

WESLEYAN HALL COMPETITION.—DESIGN B

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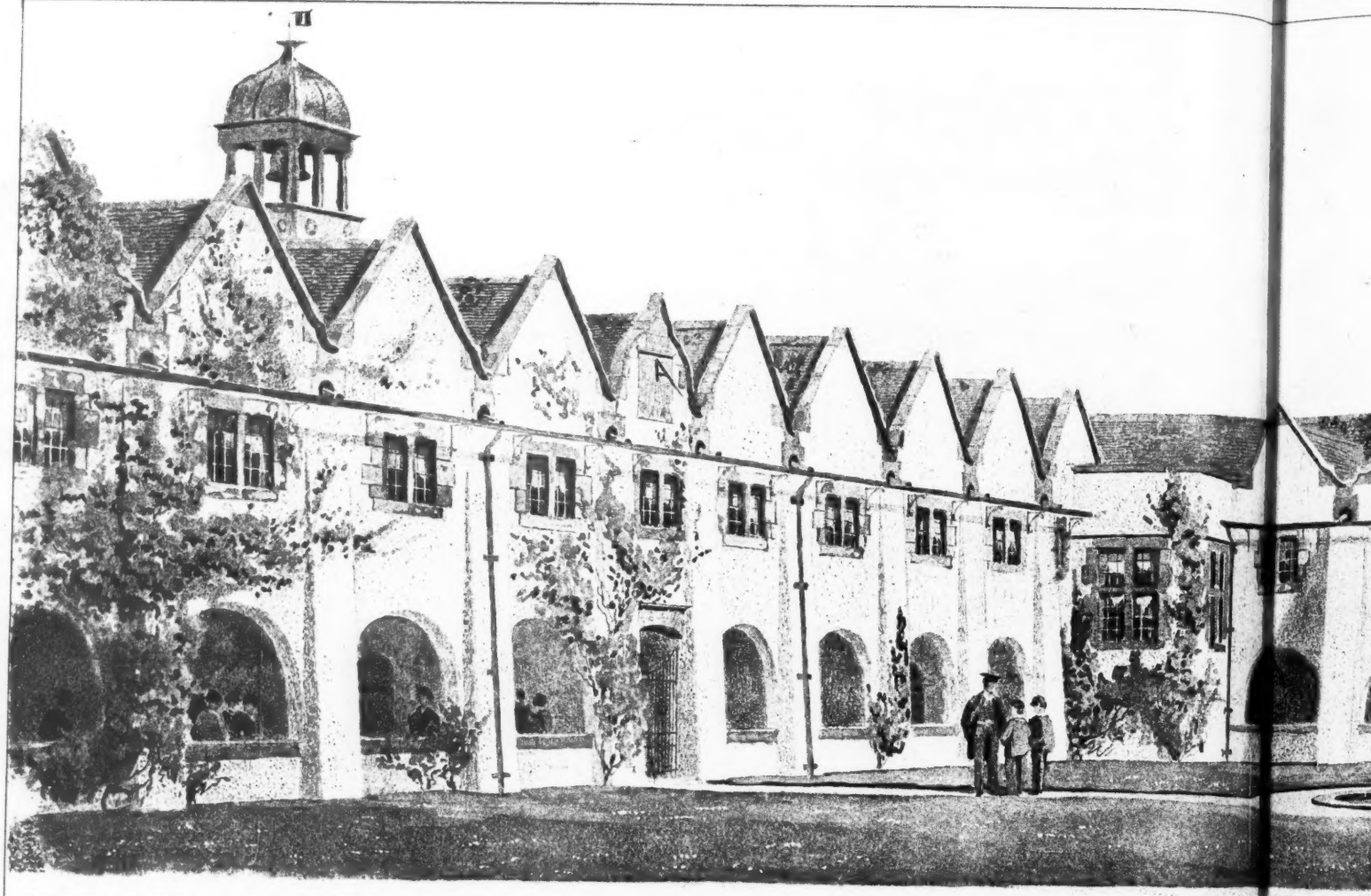
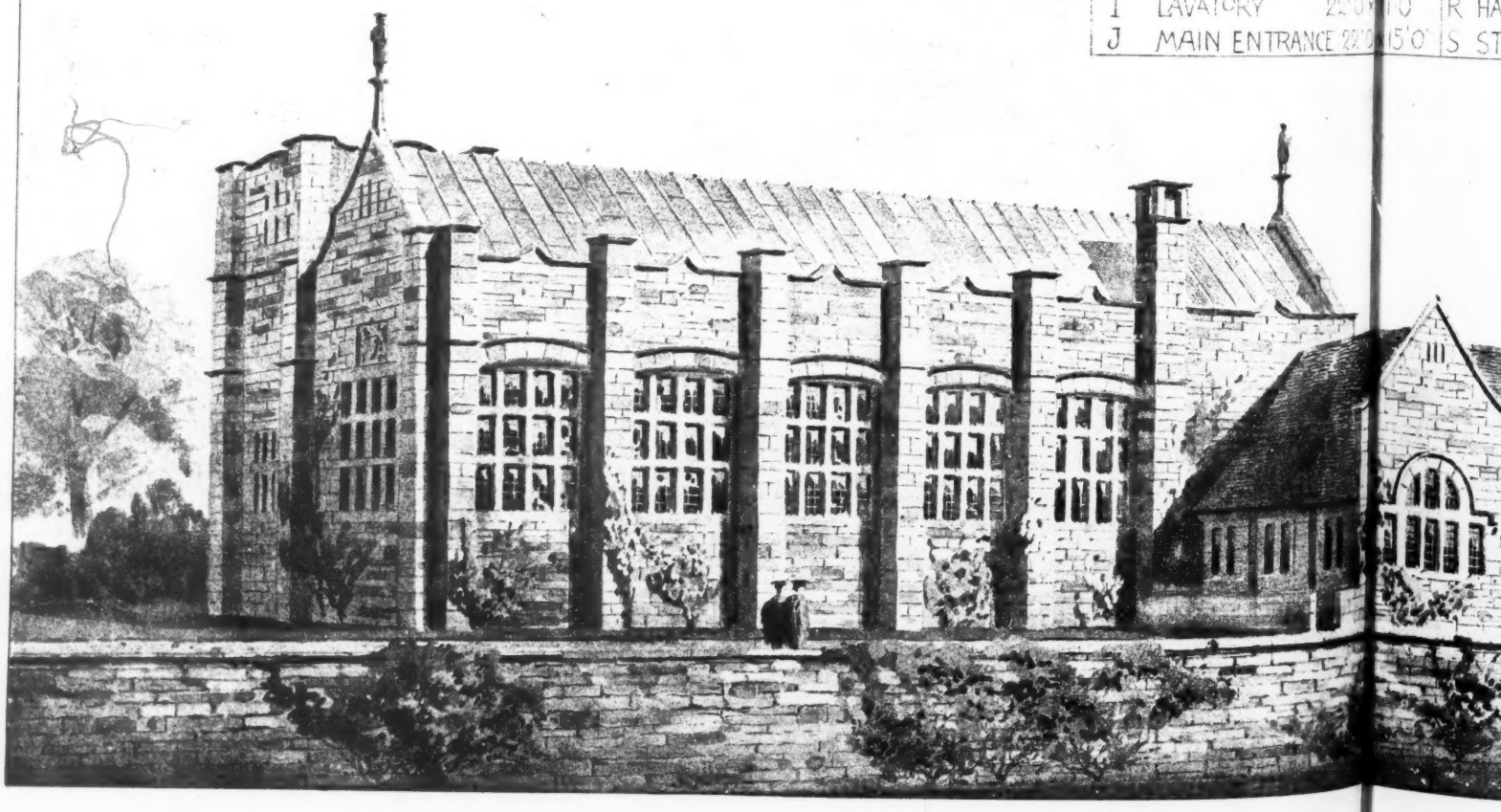


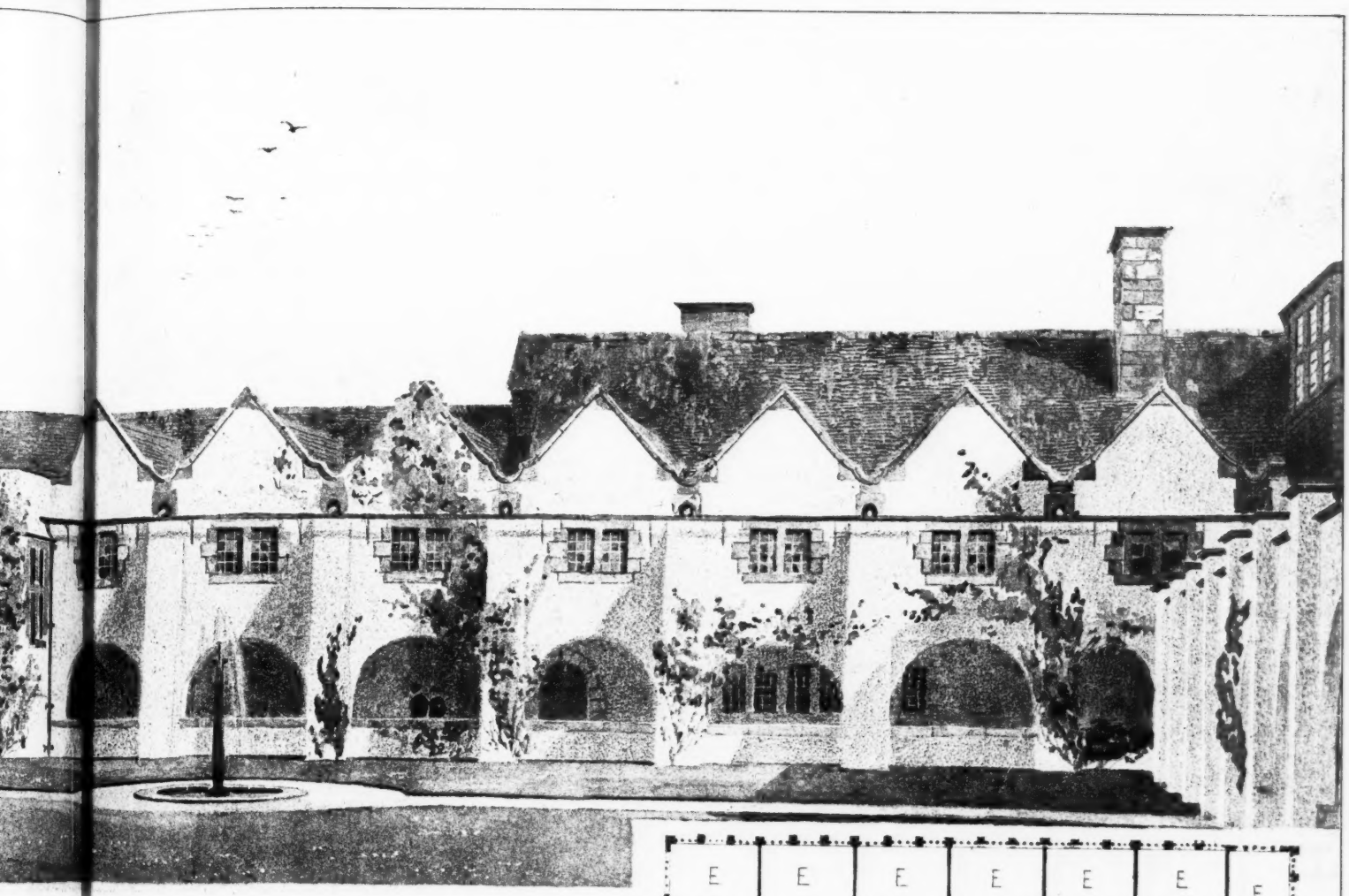
PROPOSED GRAMMAR-SCHOOL

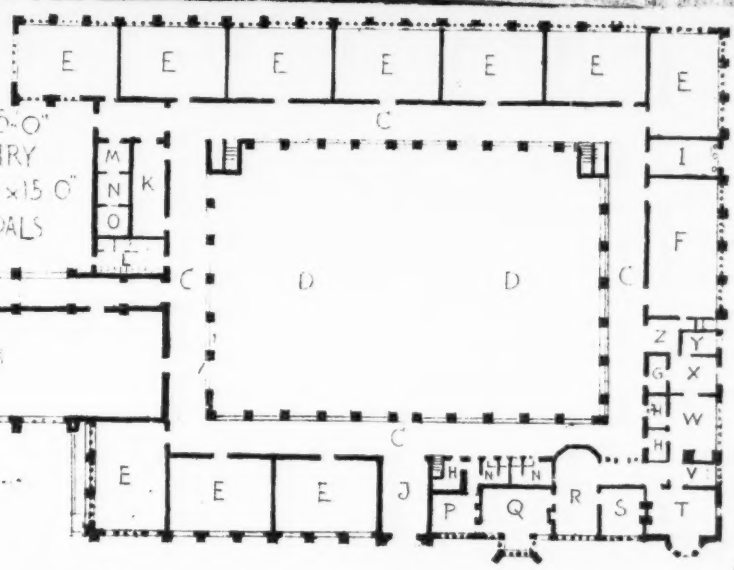
C F A VOYSEY ARCHT

REFERENCES TO PLAN

A	ANTEROOM	14'6"×8'6"
B	HALL	100'0"×35'0"
C-C	CLOISTERS	12'0" WIDE
D	QVAD	125'0"×35'0"
E-E	TO CLASS ROOMS	33'×9'2"
F	DINING HALL FOR 7	45'0"×22'0"
I	LAVATORY	22'0"×11'0"
J	MAIN ENTRANCE	22'0"×15'0"

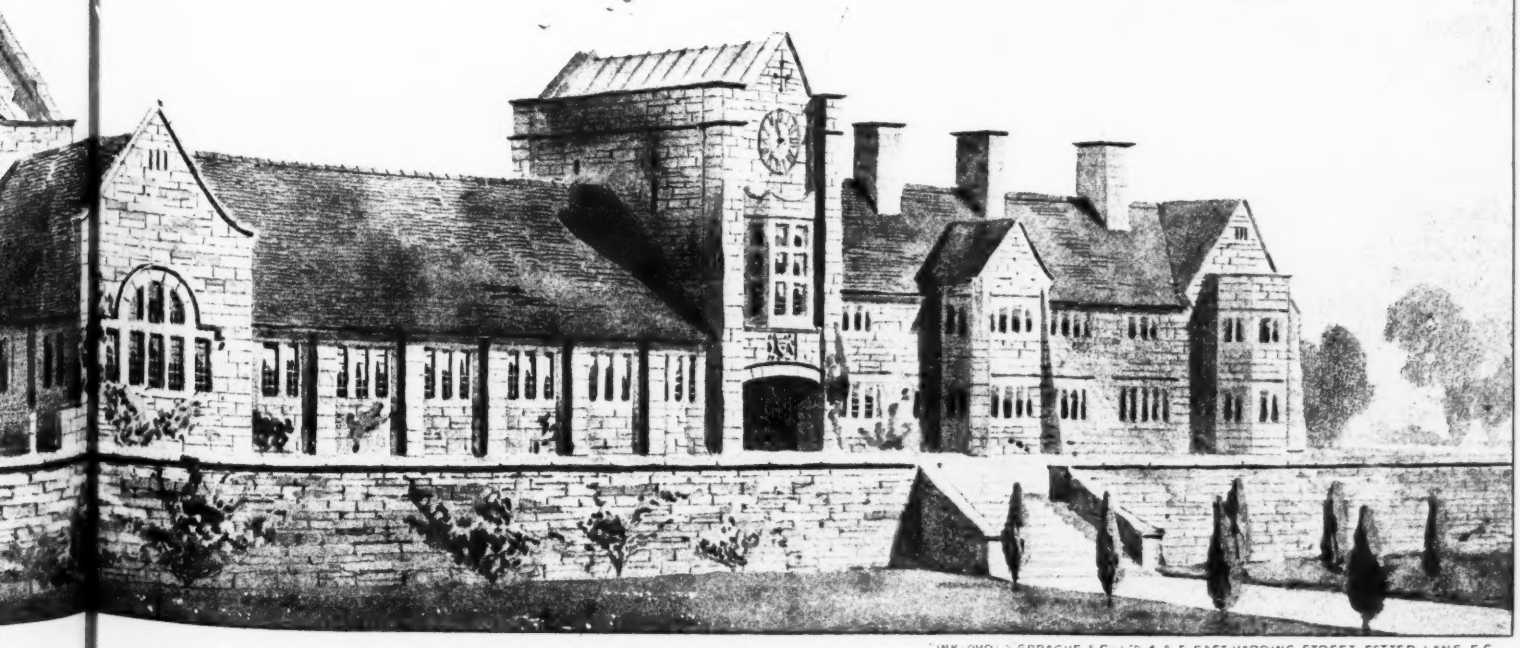






S TO PLAN

M	6'×6' 6"	K COATS & HATS	32'0"×10'0"
100'0"×3'0"		L URINALS & W Cs	
12'0" WIDE		M BOOTS	11'6"×10'0"
125'0"×6'10"		N LAVATORY	10'0"×10'0"
ROOMS 33'×22'0"		O DOUCHES	10'0"×9'0"
L FOR 7% 45'×22'0"		P MASTER'S RM	13'6"×13'6"
22'0"×10		Q DRAWING RM	21'0"×15'0"
RANCE 22'0"×15'0"		R HALL & STAIRS	24'0"×13'0"
		S STUDY	15'0"×14'6"
		T DINING RM	20'×15'0"
		V PANTRY Z PANTRY	
		W KITCHEN	18'0"×15'0"
		X SCULLY Y COALS	



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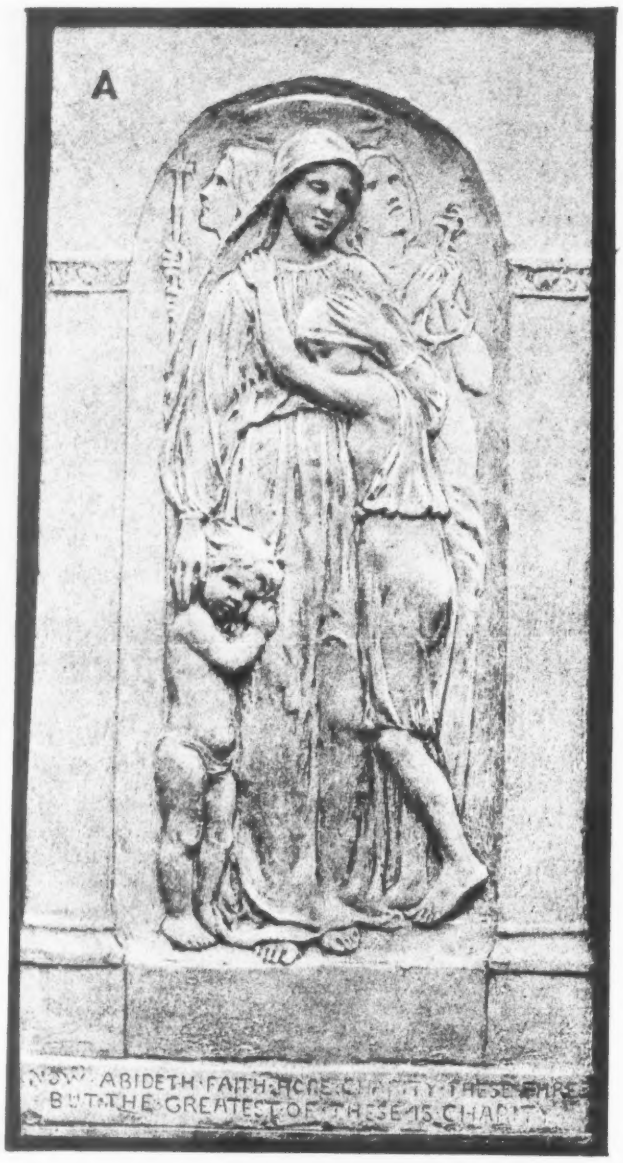
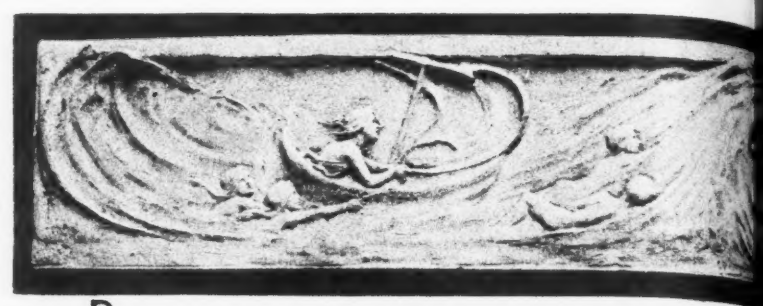

A
ABIDETH FAITH HOPE CHARITY THESE THREE
BUT THE GREATEST OF THESE IS CHARITY

B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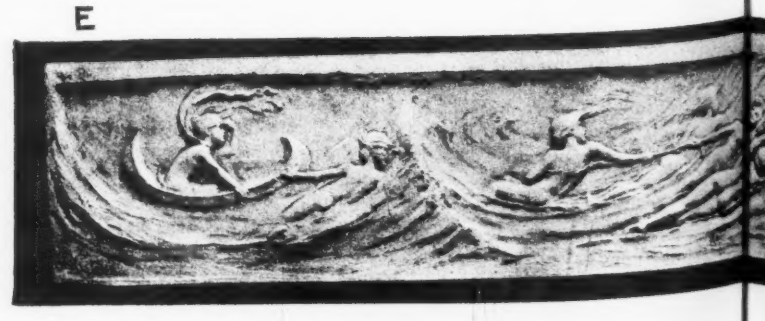
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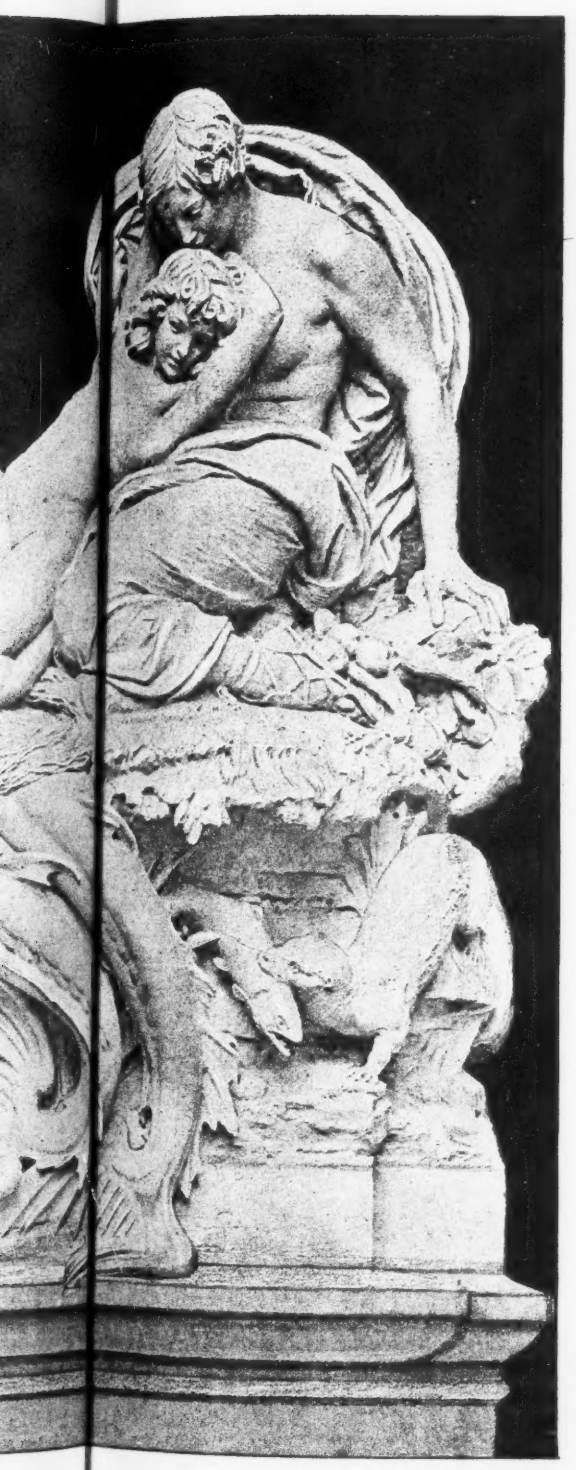

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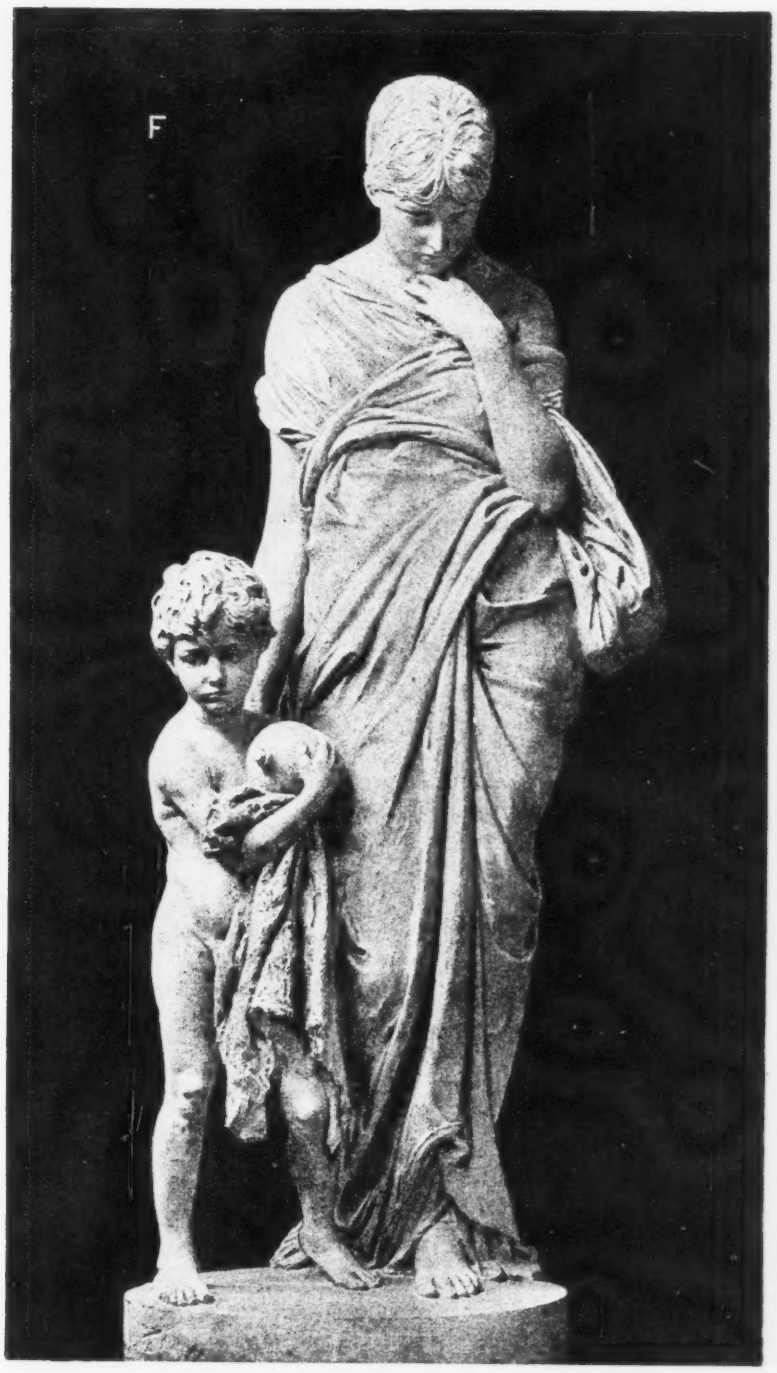

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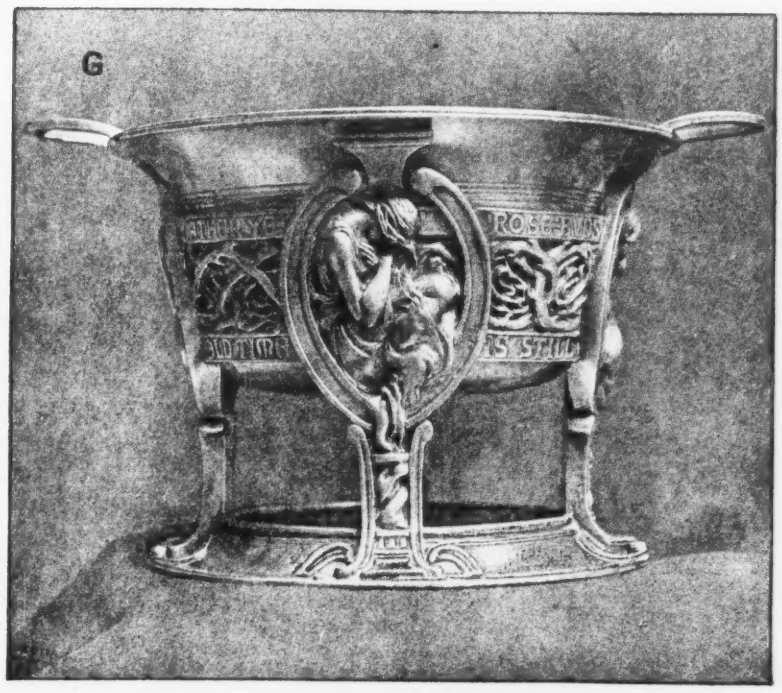

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